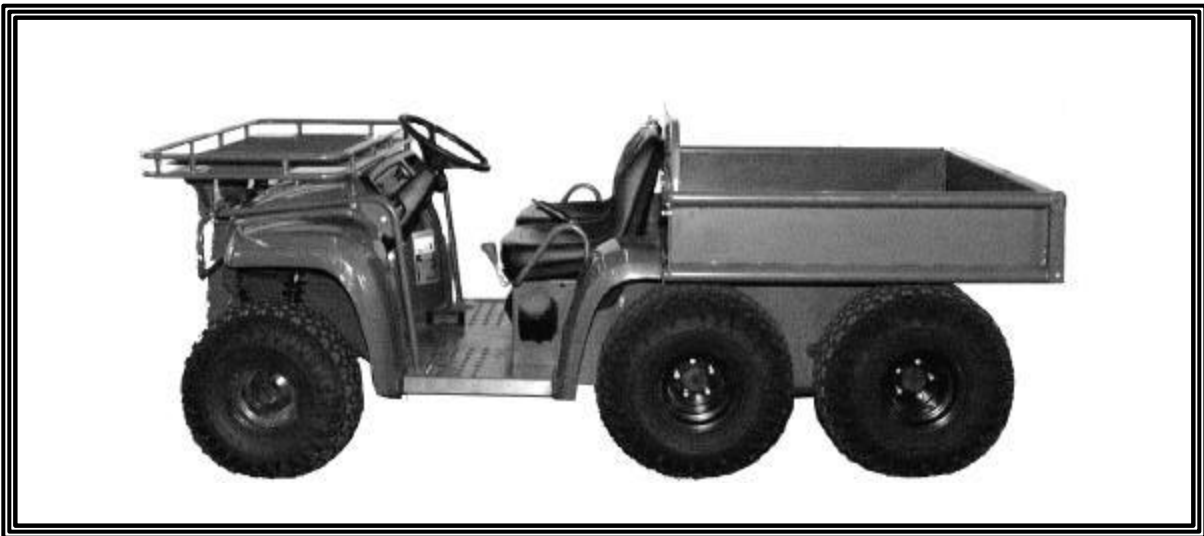




AIRDROP OF SUPPLIES AND EQUIPMENT:

RIGGING MILITARY UTILITY VEHICLE (M-GATOR)



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Headquarters
Department of the Army
and the Air Force
Washington, DC, 29 June 2001

Airdrop of Supplies and Equipment: Rigging Military Utility Vehicle (M-Gator)

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Preface

This manual tells and shows how to prepare and rig the following configurations of the Military Utility Vehicle (M-Gator) for low-velocity airdrop from a C-130, C-141, C-17, and C-5 aircraft:

- a.** One M-Gator on an 8-foot platform.
- b.** Two M-Gators and equipment box on a 20-foot platform.
- c.** One M-Gator and A-22 Cargo Bag on a 12-foot platform.

User Information

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Introduction

Description of Items

The description of the items rigged in this manual is given below:

a. Military Utility Vehicle (M-Gator): The M-Gator is 108 inches long, 60 inches wide and 43.6 inches high. The weight of the M-Gator is 1,450 pounds, including fuel and fluids. Maximum payload for the M-Gator is 1,400 pounds to include passengers.

b. A-22 Cargo Bag Assembly: The A-22 cargo bag assembly is an adjustable cotton duck cloth/nylon and nylon webbing container. For this application, the A-22 bag assembly will not exceed a maximum rigged weight of 1,000 pounds due to the M-Gator payload restrictions. The minimum rigged weight is 800 pounds. Maximum height for the rigged A-22 is 83 inches.

Special Considerations

CAUTION

Only ammunition listed in FM 10-500-53/MCRP 4-3.8/
TO 13C7-18-41 may be airdropped.

The loads covered in this manual may include hazardous materials as defined in AFJMAN 24-204/TM 38-250. If included, the hazardous material must be packaged, marked, and labeled as required by AFJMAN 24-204/TM 38-250.

A copy of this manual must be available to the joint airdrop inspectors during the before- and after-loading inspections.

CHAPTER 1

Rigging One Military Utility Vehicle (M-Gator) on an 8-Foot Platform for Low-Velocity Airdrop

DESCRIPTION OF LOAD

1-1. This load consists of one John Deere Diesel, which has been named the Military Utility Vehicle (M-Gator)(Figure1-1). It is rigged on an 8-foot platform. The load shown has a rigged weight of 3120 pounds. It has a length of 125 inches, width of 108 inches, and height of 78 inches, with a center of balance of 49 inches. The load is rigged with one G-11 cargo parachute.

PREPARING PLATFORM

1-2. Inspect, or assemble and inspect, an 8-foot platform as outlined in TM 10-1670-268-20&P/TO 13C7-52-22. Prepare an 8-foot platform using 14 tiedown clevises as shown in Figure1-2.

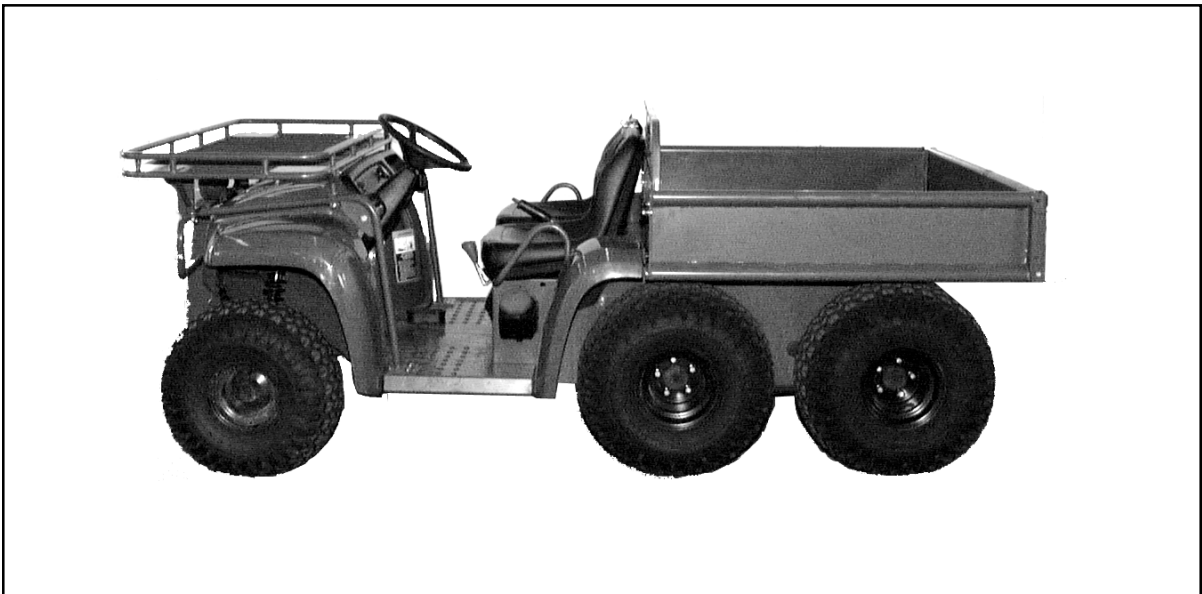


Figure 1-1. Military Utility Vehicle (M-Gator)

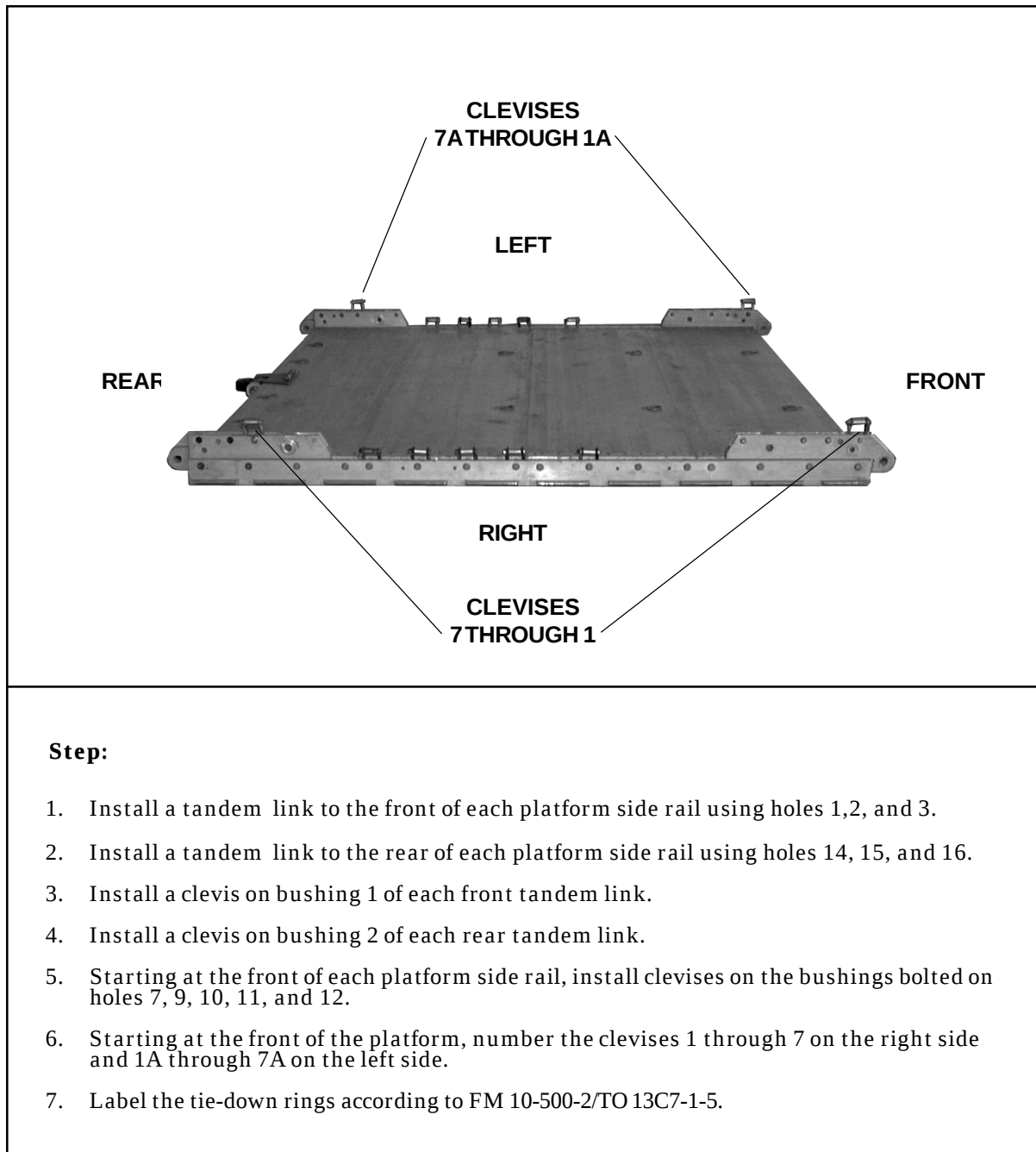


Figure 1-2. Platform Prepared

BUILDING AND PLACING HONEYCOMB STACK

1.3. Prepare the honeycomb stack for the M-Gator as shown in Figure1-3.
Position the honeycomb stack as shown in Figure1-4.

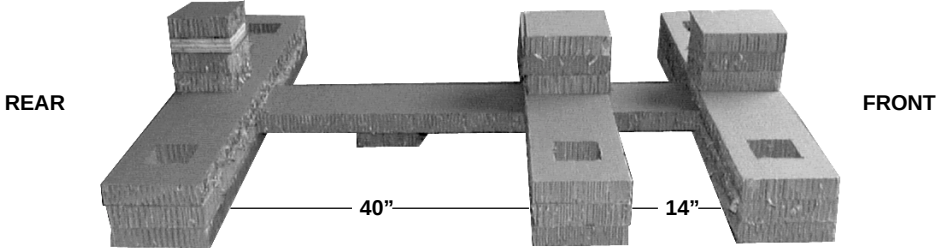
					
Stack Number	Pieces	Width (inches)	Length (inches)	Material	Instructions
1	3	72	12	Honeycomb	Position on floor with the second piece 14 inches from the first and the third piece 40 inches from the second. Cut a 6-inch by 6-inch hole in each piece of honeycomb 6 inches from the sides and centered.
	1	9	9	Honeycomb	Centered and 16 inches from the rear of the second piece of honeycomb.
	1	12	90	Honeycomb	Center and glue across first four pieces of honeycomb.
	6	30	12	Honeycomb	Cut 6-inch by 6-inch holes, 6 inches from one side, in the center of each piece. Line holes up on base and glue in place.
	3	72	12	Honeycomb	Cut 6-inch by 6-inch holes on each side of honeycomb, 6 inches from the side and centered. Line holes up on base and glue in place.
	6	12	12	Honeycomb	Center and glue three pieces on the first and second sections.
	2	9	9	Honeycomb	Center and glue on the third sections rear edge.
	3	9	9	3/4-inch Plywood	Glue on the 9-inch by 9-inch honeycomb stack.
	1	9	9	Honeycomb	Glue on the 9-inch by 9-inch honeycomb and plywood stack.

Figure1-3. Honeycomb Stack Prepared

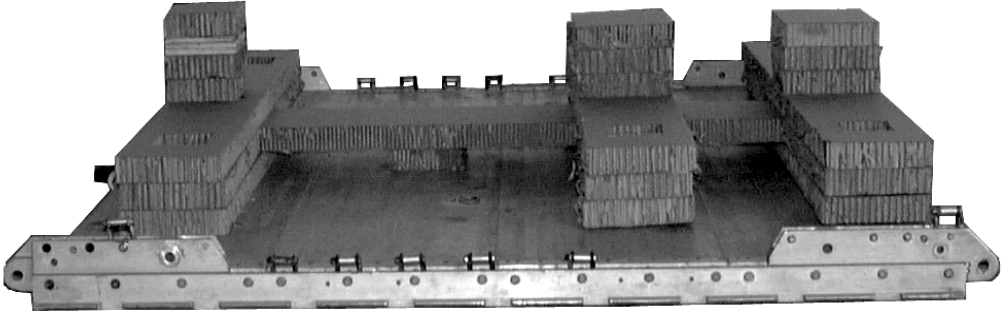
	
Stack Number	Position of Stack on Platform
1	Place stack: Centered on platform and even with front edge of platform.

Figure1-4. Honeycomb Stack Positioned on Platform

PREPARING THE M-GATOR

1-4. Prepare the M-Gator according to Figure1-5.

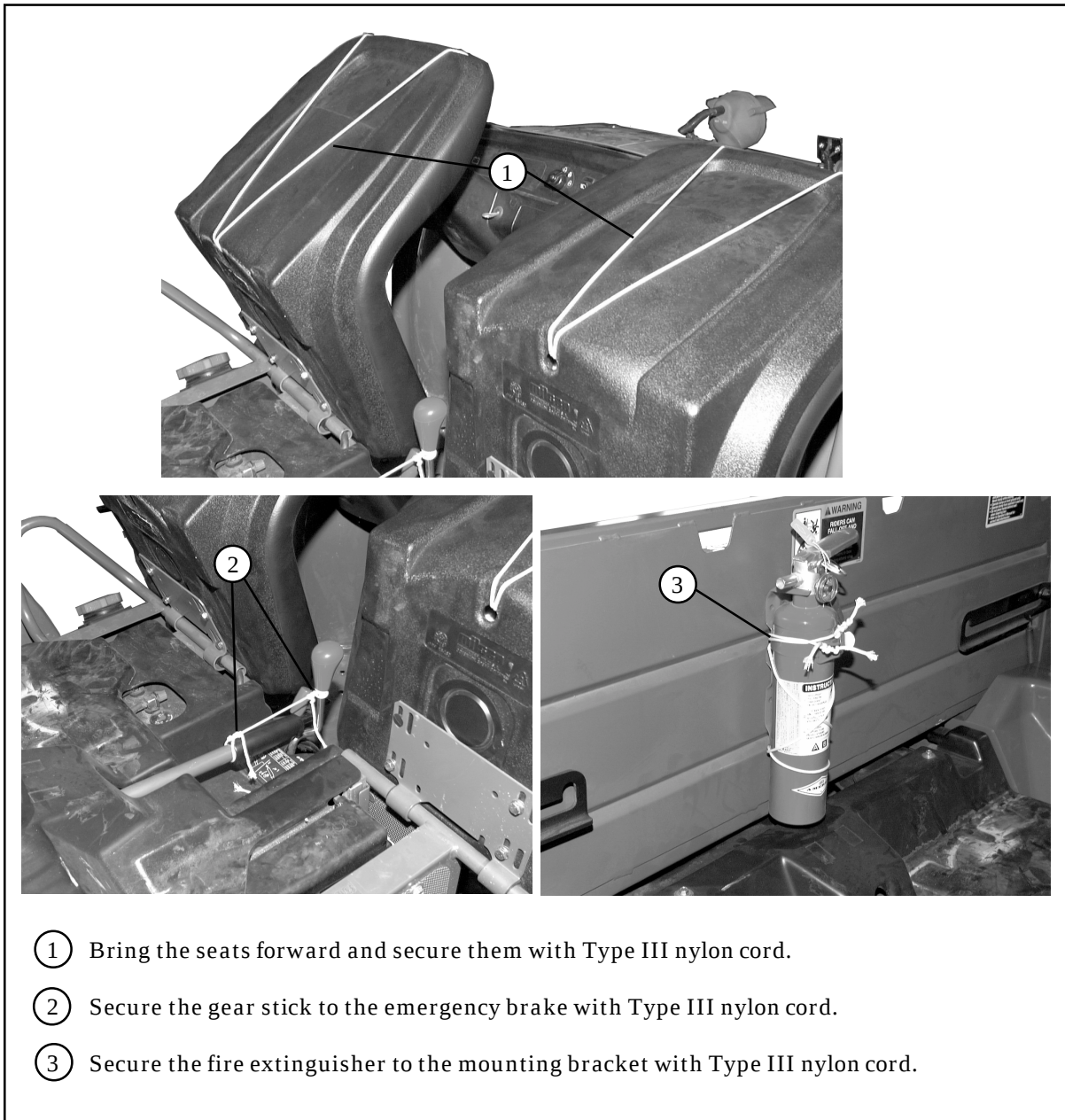


Figure1-5. M-Gator Prepared

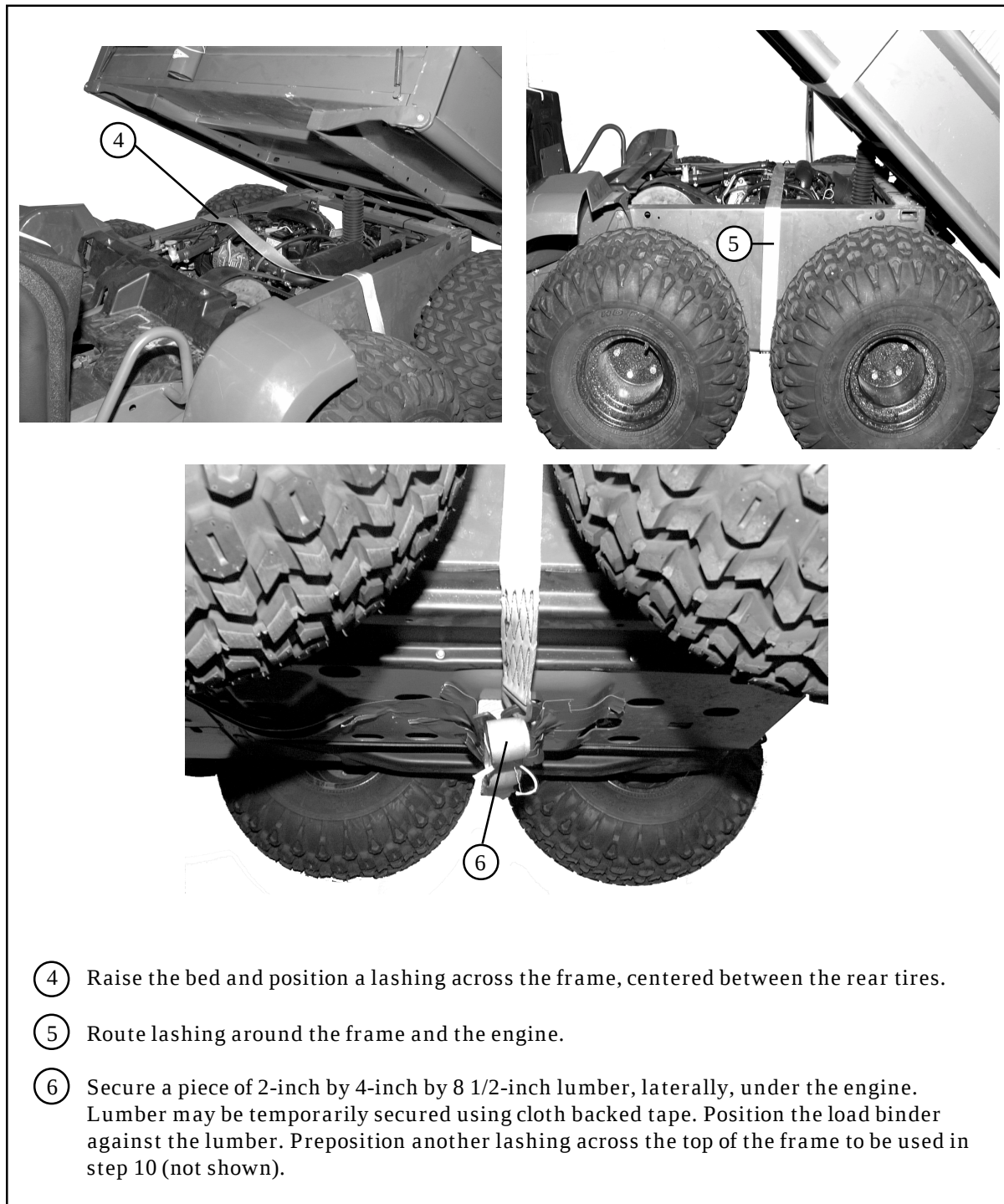
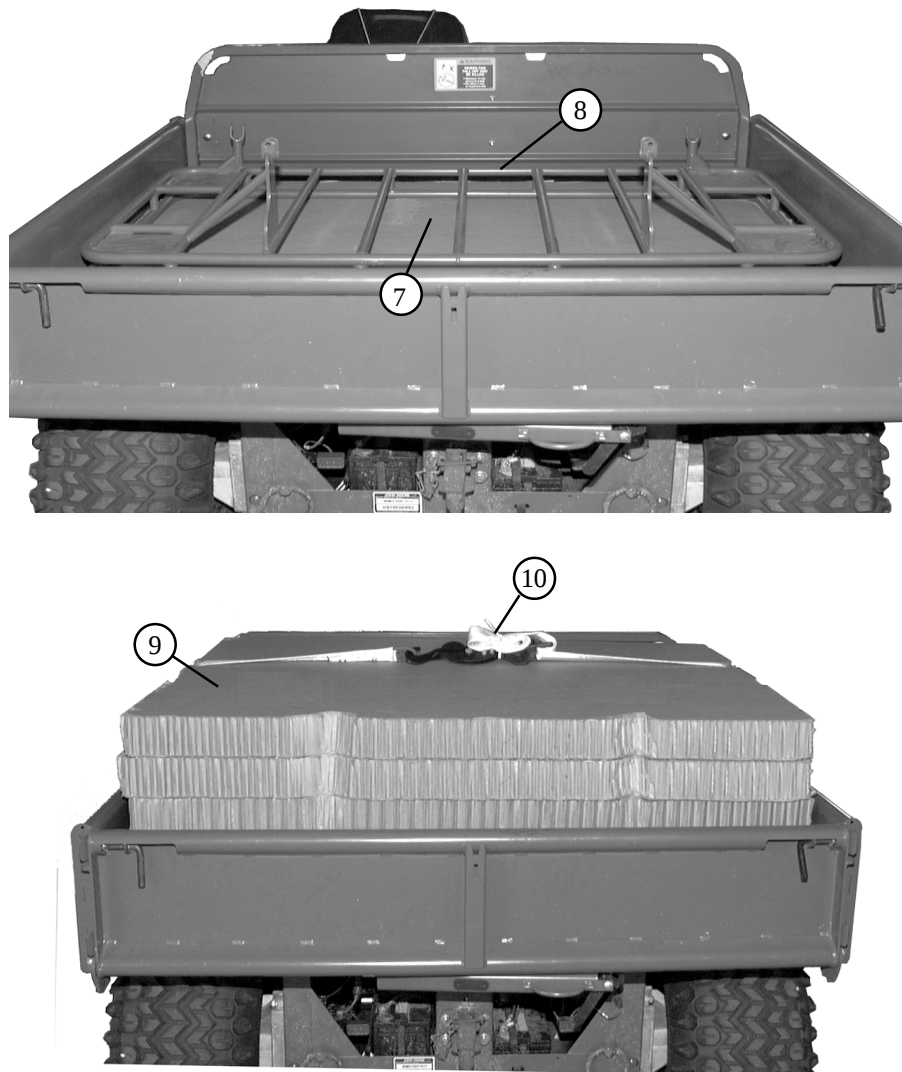


Figure 1-5. M-Gator Prepared (Continued)



- ⑦ Lower the bed and place one layer of 36-inch by 56-inch honeycomb in it.
- ⑧ Remove the litter from the M-Gator and place the litter upside down and centered on the honeycomb.
- ⑨ Place three more 36-inch by 56-inch honeycomb pieces on the litter and force them all the way down.
- ⑩ Secure the litter and honeycomb to the bed with the prepositioned lashing.

Figure 1-5. M-Gator Prepared (Continued)

POSITIONING LOAD

1-5. Using four 12-foot (2-loop), type XXVI, nylon suspension slings, lift and position the M-Gator. Attach large clevis assemblies to each sling. Using two front and two rear lifting points, attach one clevis to each lifting point. Position the M-Gator with the rear of the vehicle facing the front of the platform. Align the rear edge of the M-Gator frame with the front edge of the honeycomb stack and center. Each tire will be centered over a cutout in the honeycomb stack according to Figure1-6.



Figure1-6. M-Gator Positioned

LASHING M-GATOR

1-6. Lash the M-Gator to the platform according to FM 10-500-2/TO 13C7-1-5 and as shown in Figures 1-7 through 1-9.

NOTE: Place all load binders near the platform in case adjustments to the lashings are needed.

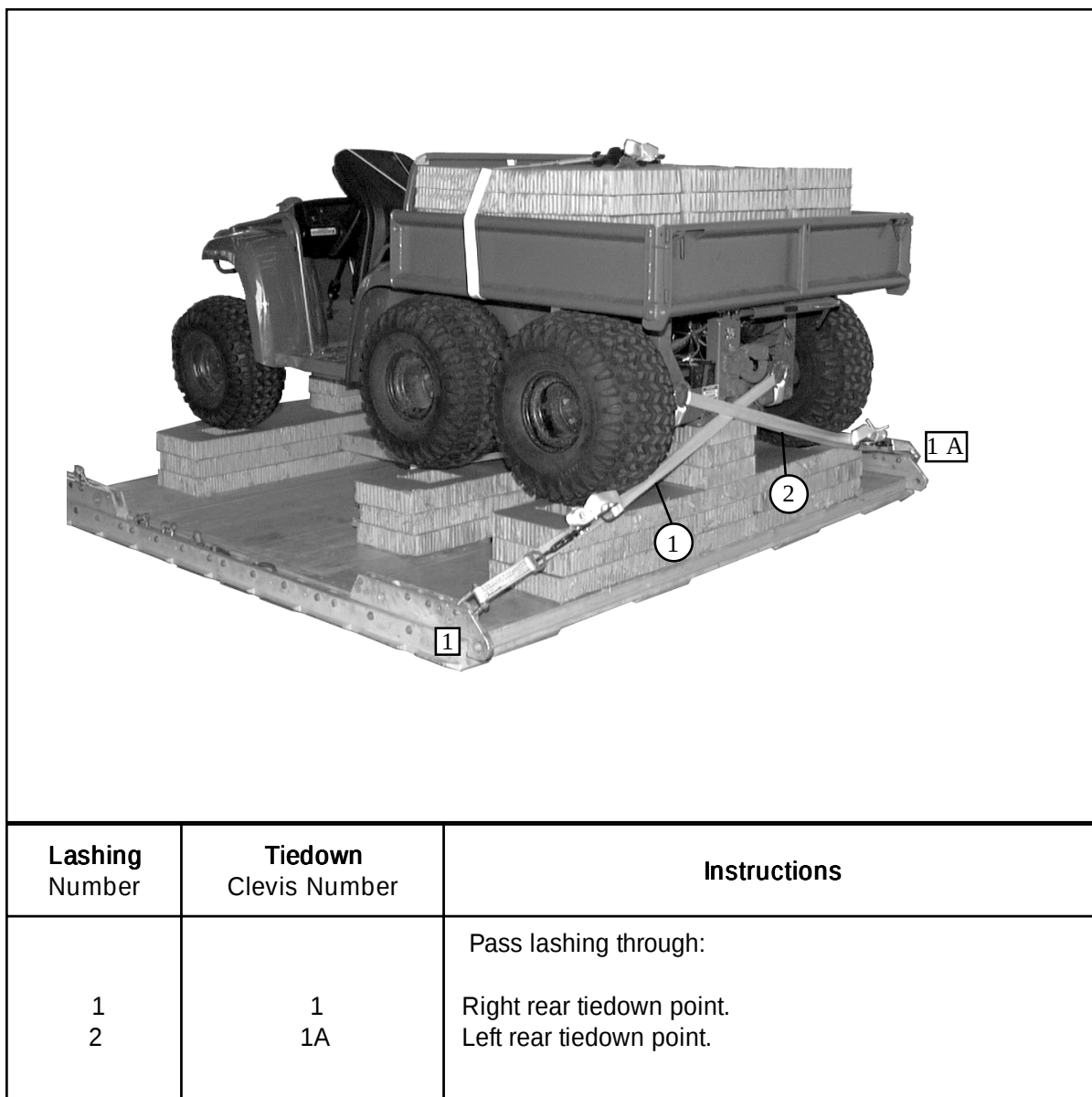


Figure1-7. Lashings 1 and 2 Installed

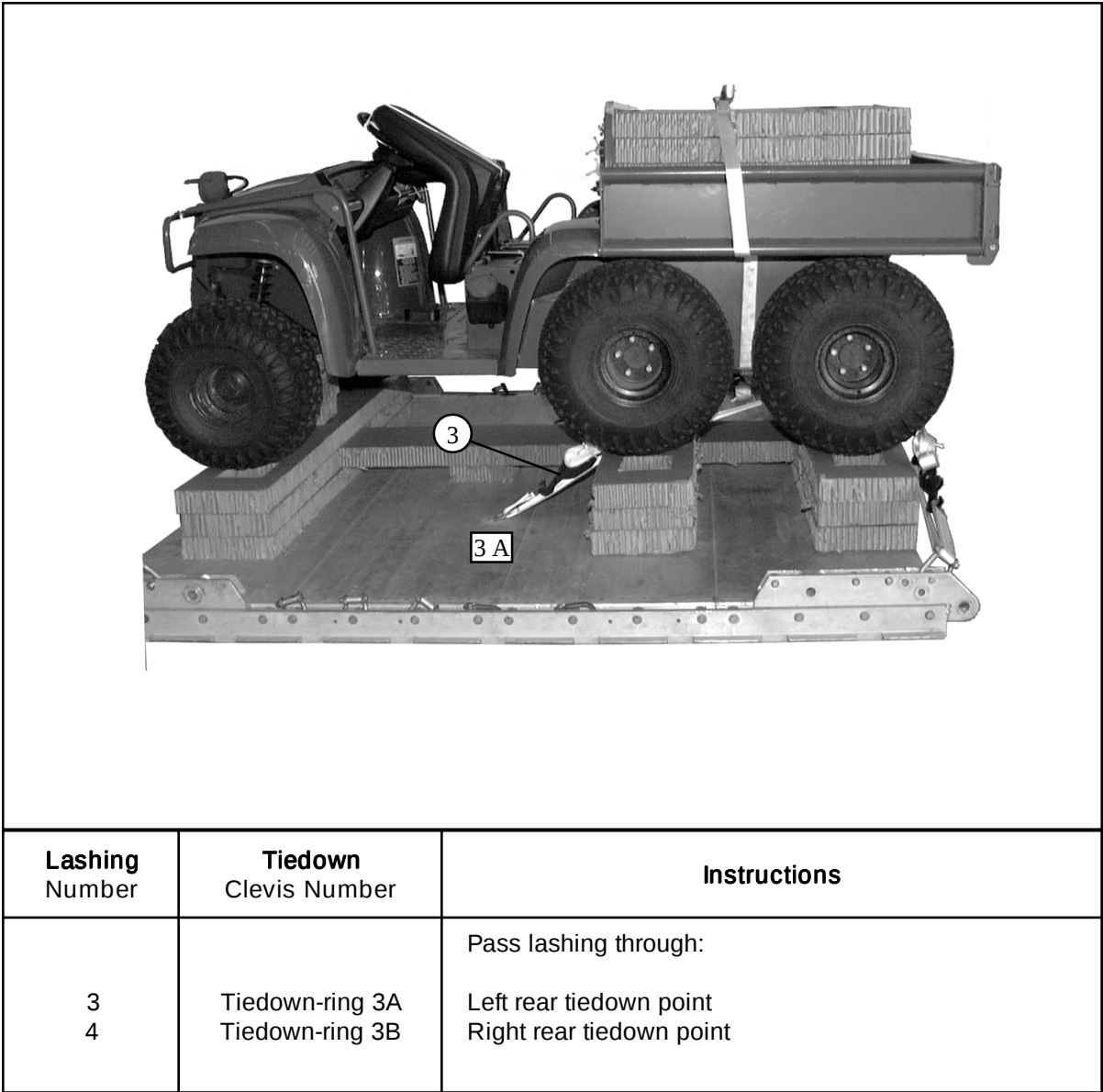


Figure 1-8. Lashings 3 and 4 Installed

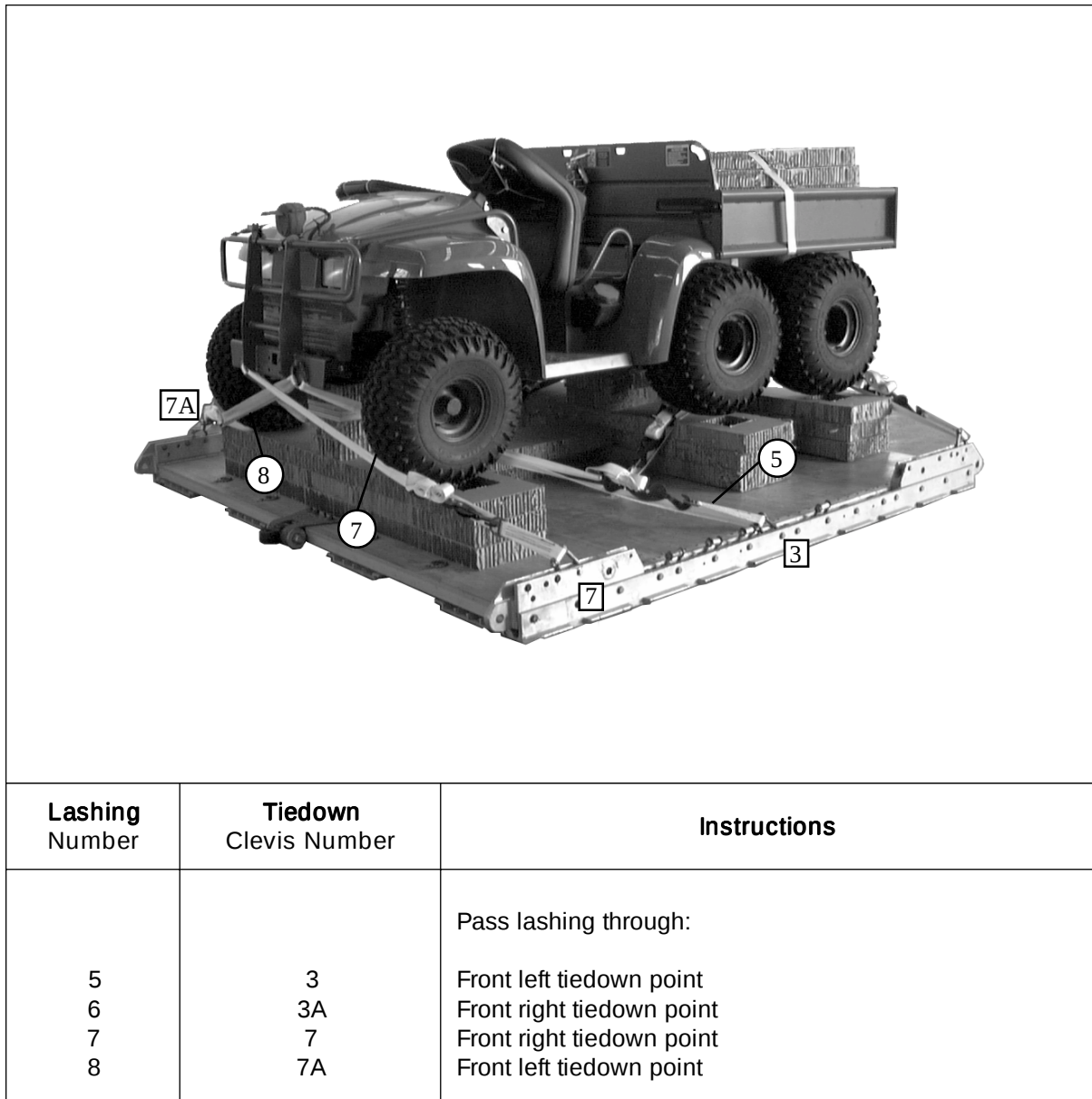


Figure 1-9. Lashings 5, 6, 7, and 8 Installed

BUILDING M-GATOR BOX

1-7. Build the M-Gator box using 8d common nails as shown in Figure 1-10.

NOTE: Use wood glue and 1 1/2 inch long, #4 wood screws to sturdy box for multiple airdrop use.

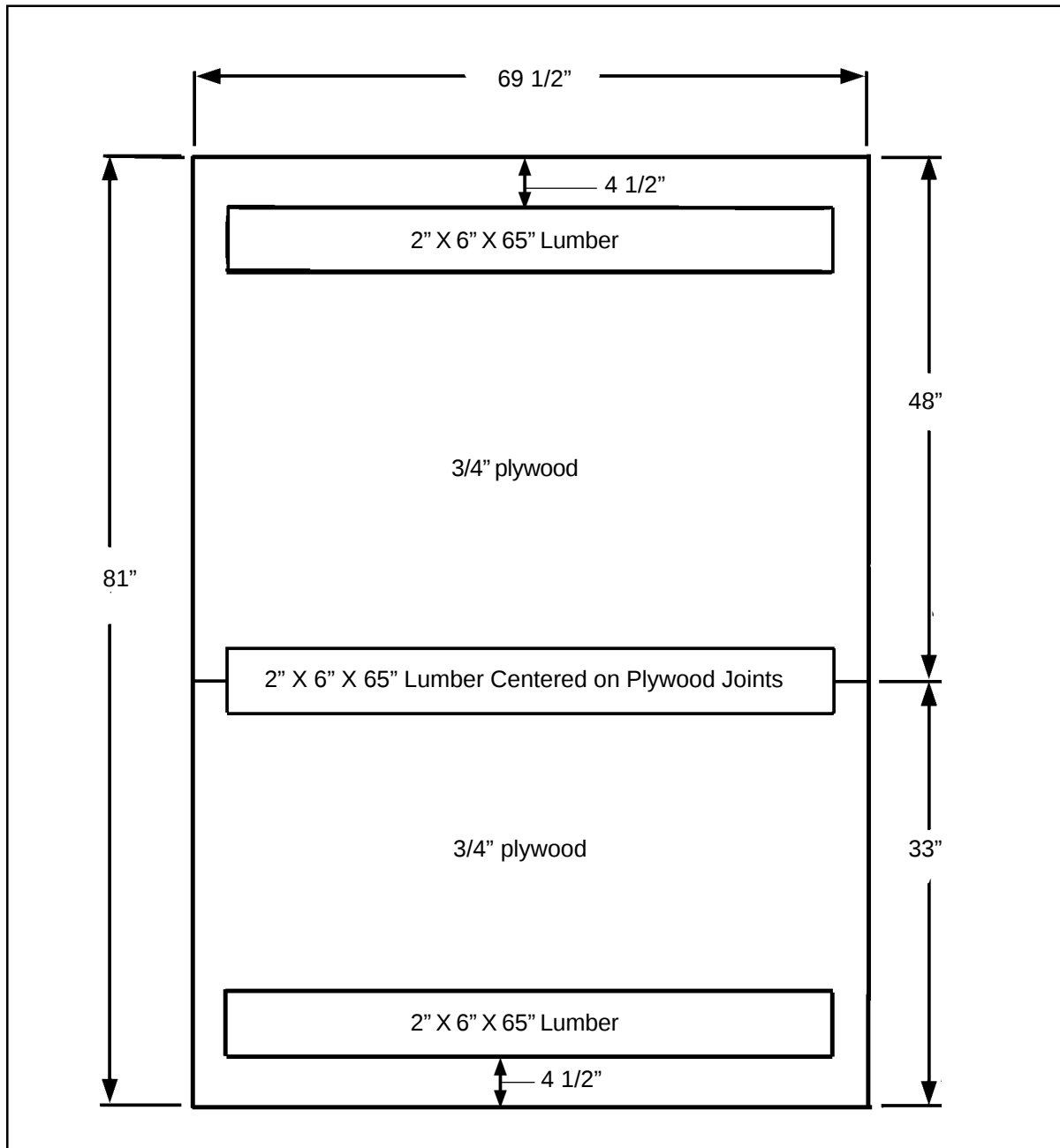


Figure 1-10. M-Gator Box Built (Top Board)

**ONE RIGHT AND ONE LEFT SIDEBOARD
IS REQUIRED TO BUILD BOX**

NOTE: Diagram not drawn to scale. Sides are not symmetrical.

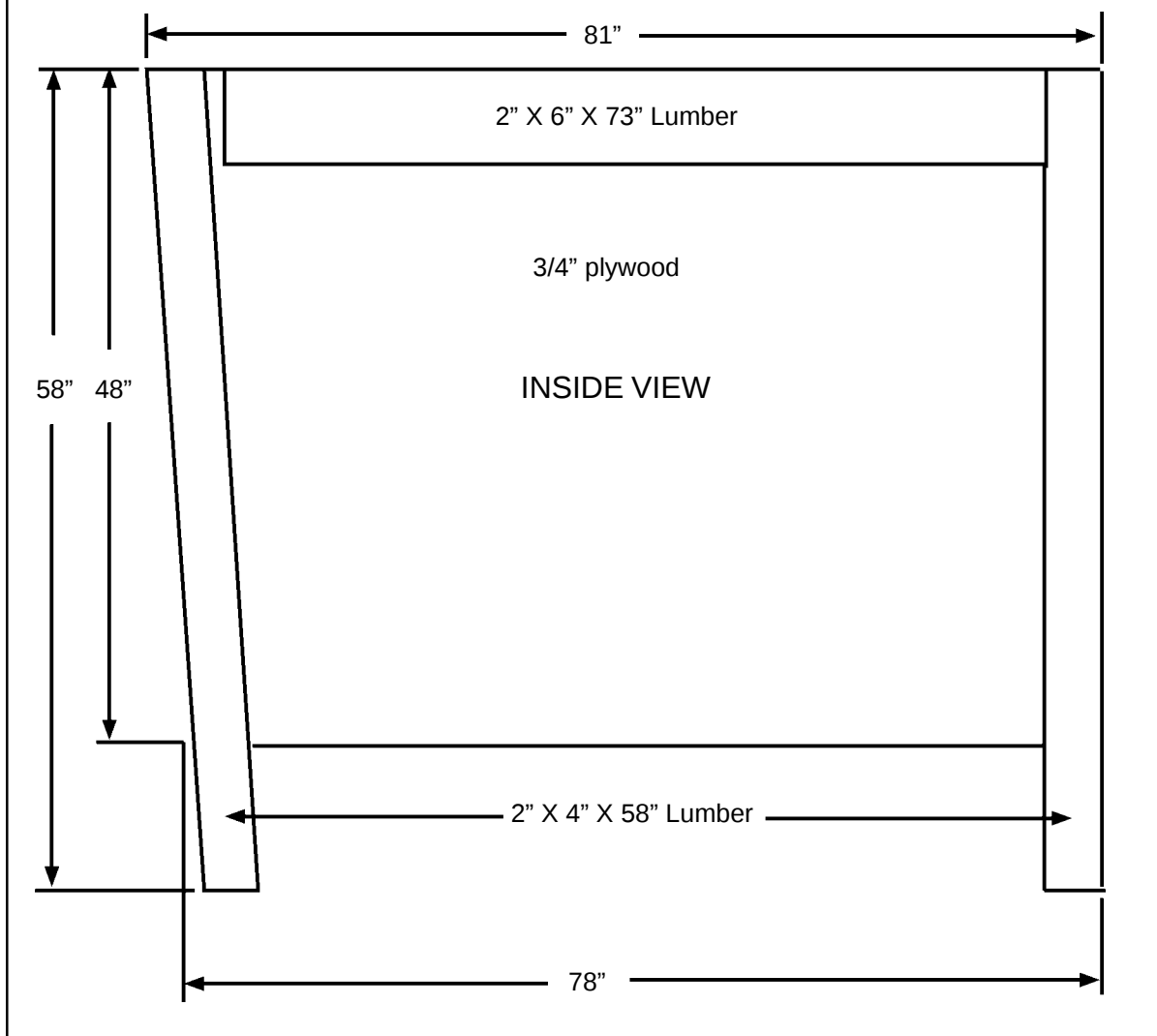


Figure 1-10. M-Gator Box Built (Side Boards) (Continued)

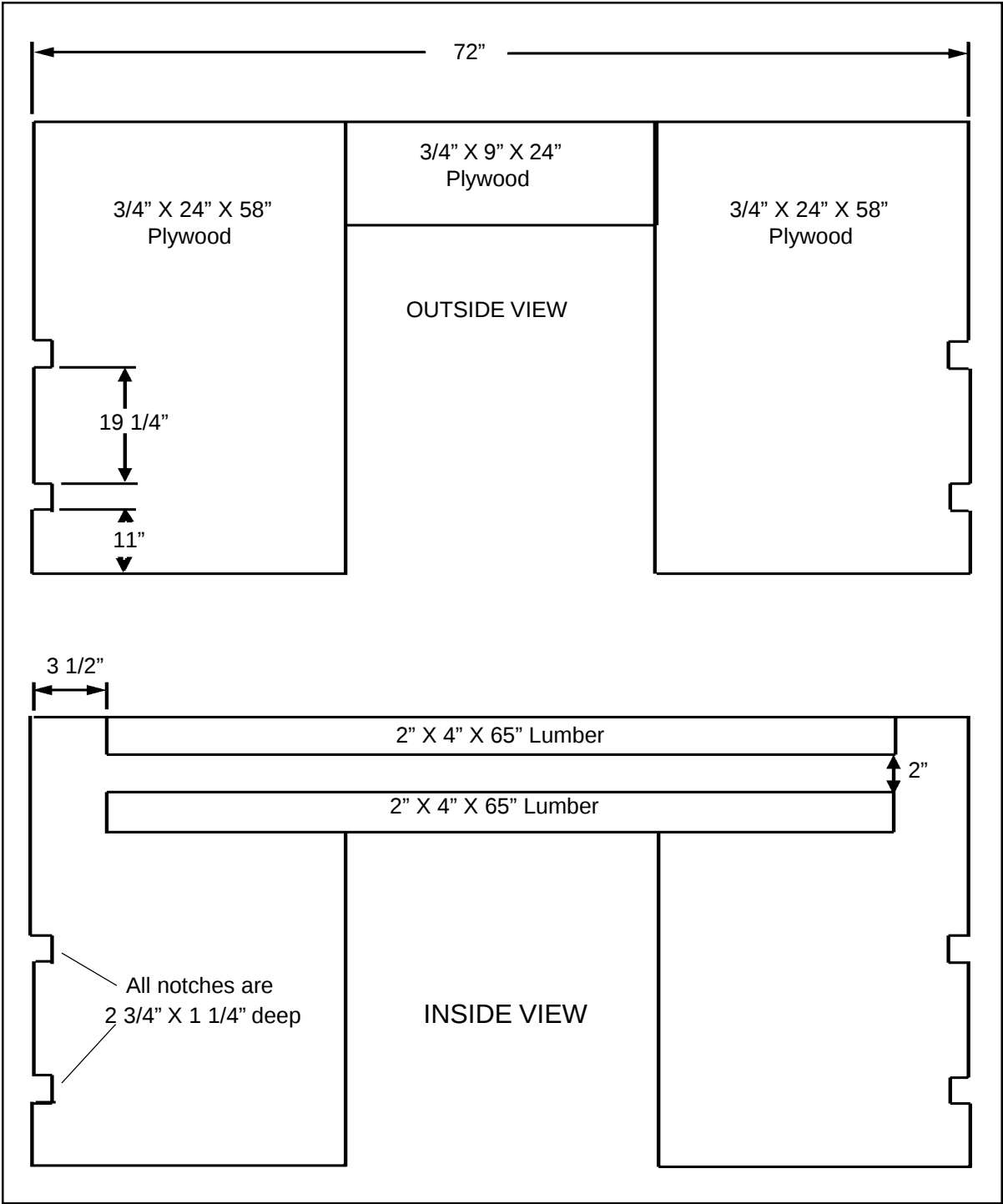


Figure 1-10. M-Gator Box Built (Front Board) (Continued)

POSITIONING M-GATOR BOX

1-8. Position M-Gator box as shown in Figure 1-11.

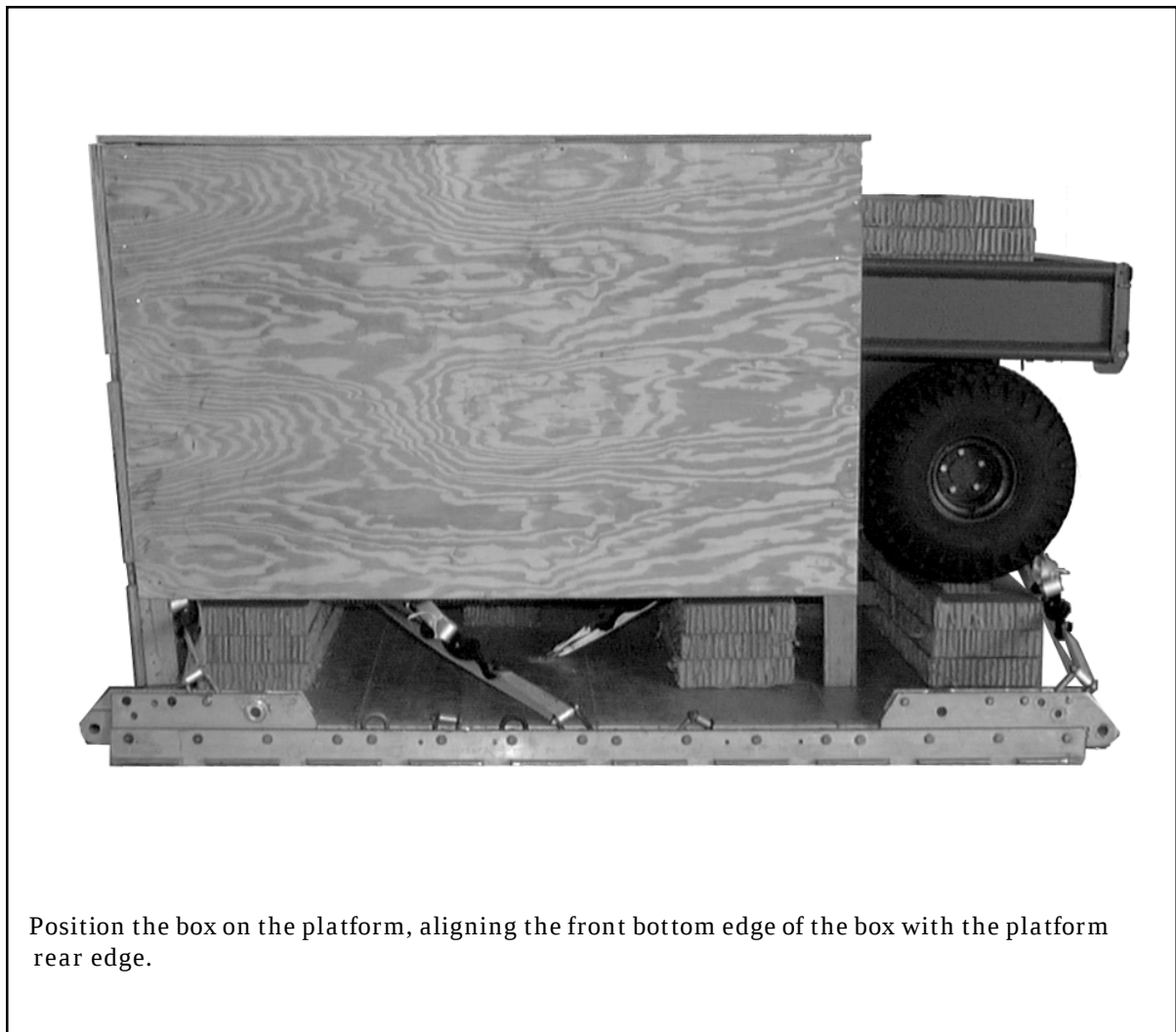


Figure 1-11. M-Gator Box Positioned

LASHING M-GATOR BOX

1-9. Lash the M-Gator box to the platform according to FM 10 500-2/TO 13C7-1-5 and as shown in Figure 1-12.

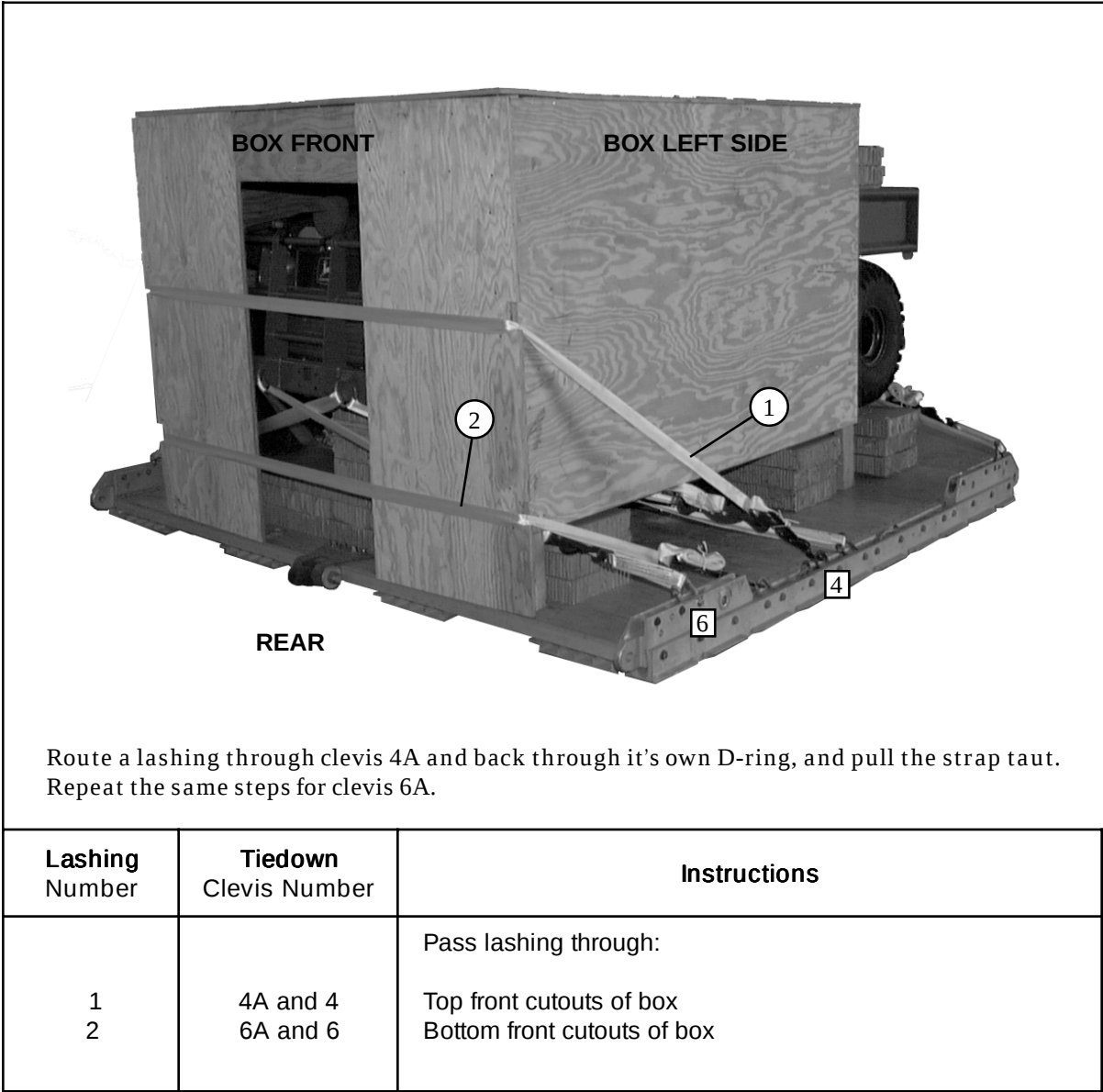
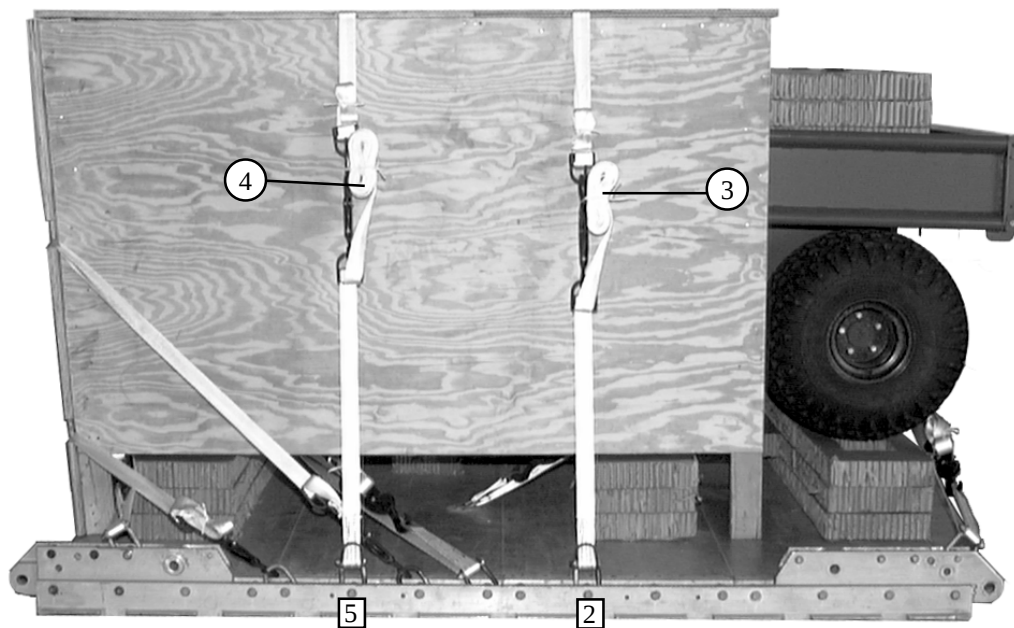


Figure 1-12. M-Gator Box Lashed



Route a lashing through clevis 2 and back through its own D-ring, and pull strap taut. Repeat the same steps for clevises 2A, 5, and 5A.

Lashing Number	Tiedown Clevis Number	Instructions
3 4	2 and 2A 5 and 5A	Pass lashing: Over top of box and bind on left side of box. Over top of box and bind on left side of box.

Figure 1-12. M-Gator Box Lashed (Continued)

INSTALLING SUSPENSION SLINGS

1-10. Install four 12-foot (2 loop), type XXVI nylon slings as suspension slings according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 1-13.

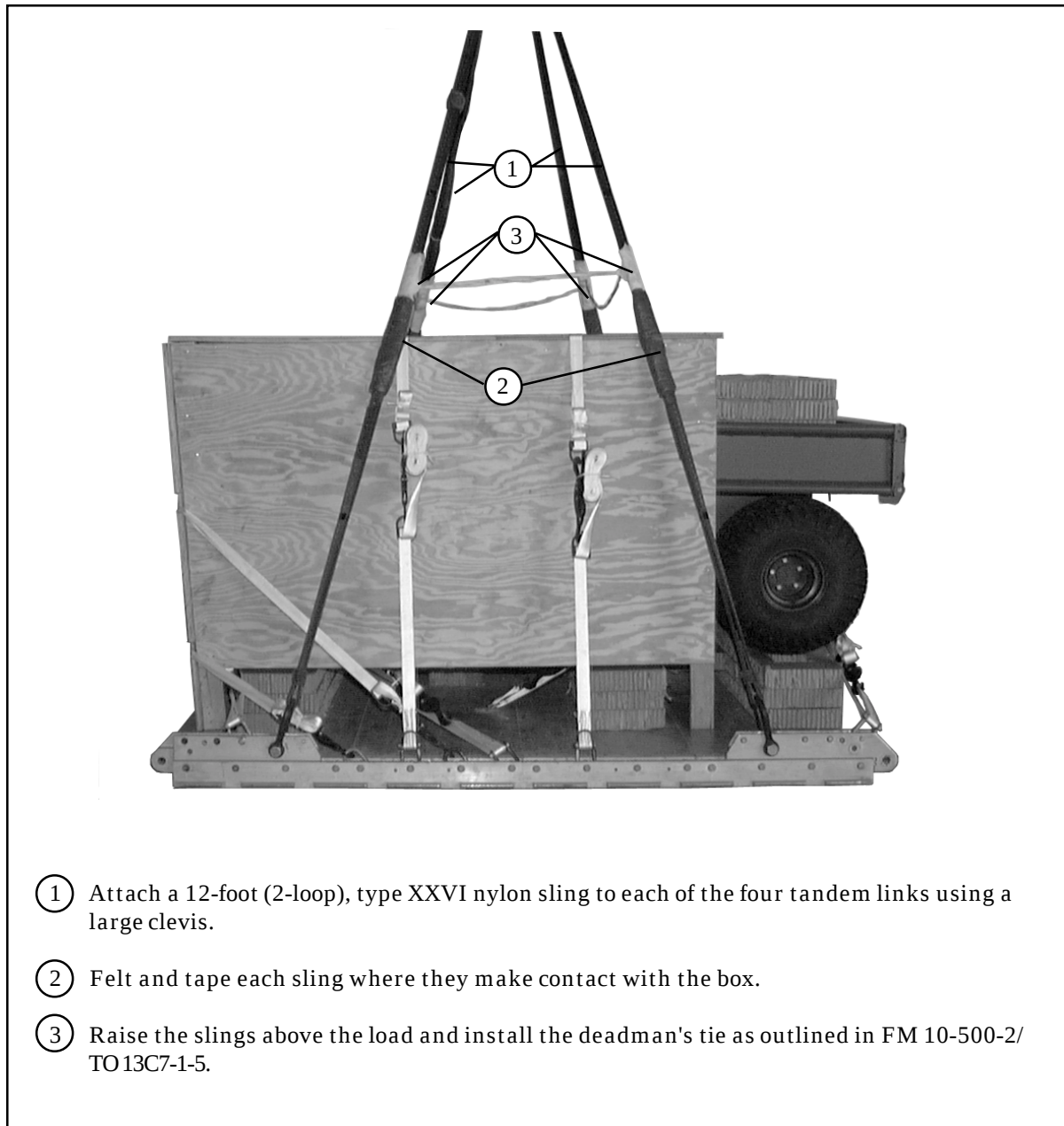


Figure 1-13. Suspension Slings Installed

STOWING CARGO PARACHUTE

1-11. Prepare, stow, and restrain one G-11 cargo parachute on the front edge of the M-Gator box according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 1-14.



Figure 1-14. Cargo Parachute Stowed

INSTALLING EXTRACTION SYSTEM

1-12. Install the Extraction Force Transfer Coupling (EFTC) according to FM 10-500-2/TO13C7-1-5 and as shown in Figure 1-15.

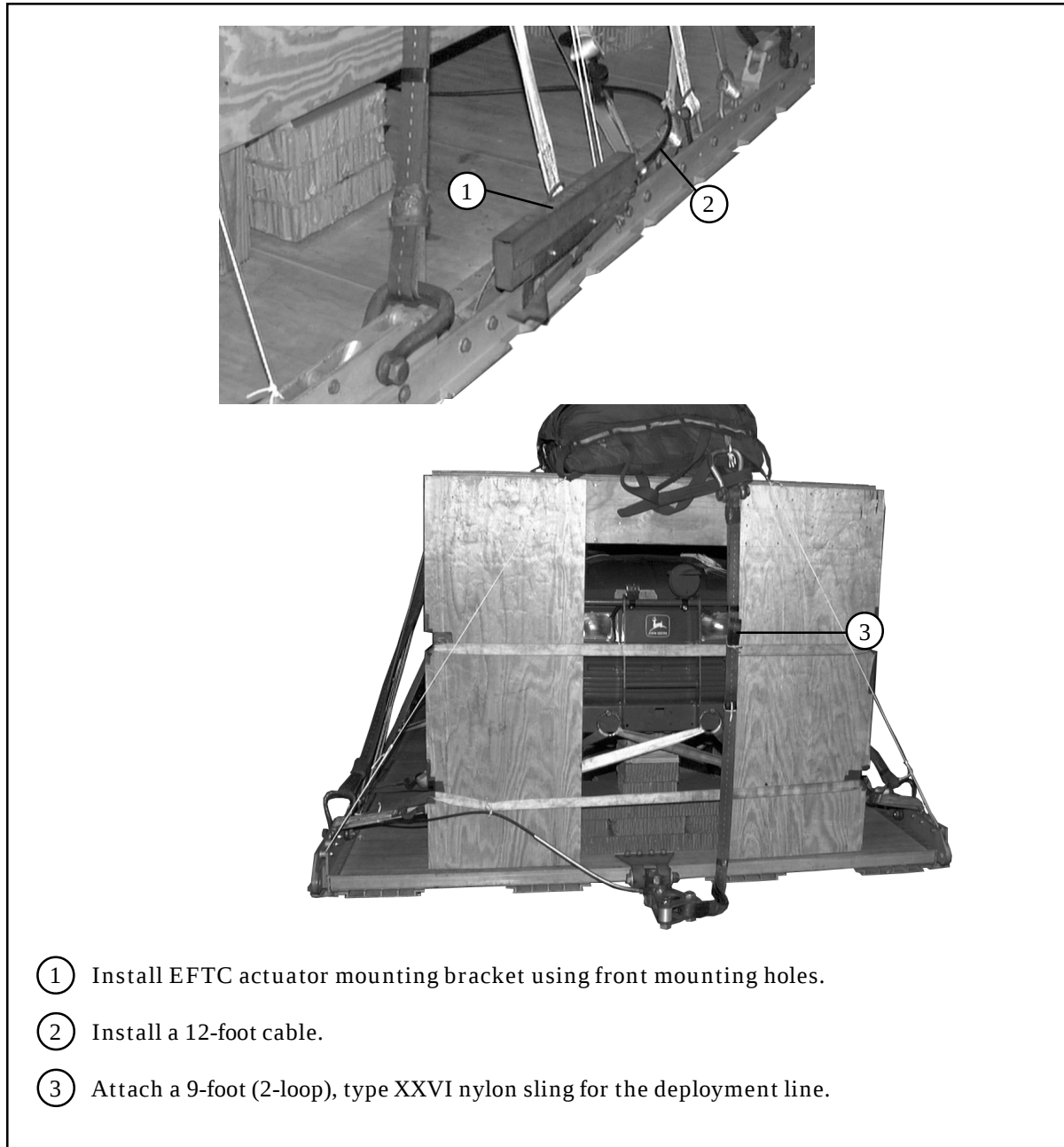


Figure 1-15. Extraction System Installed

INSTALLING PARACHUTE RELEASE

1-13. Prepare and install an M-1 cargo parachute release system according to FM 10-500-2/TO 13C7-1-5, and as shown in Figure 1-16.

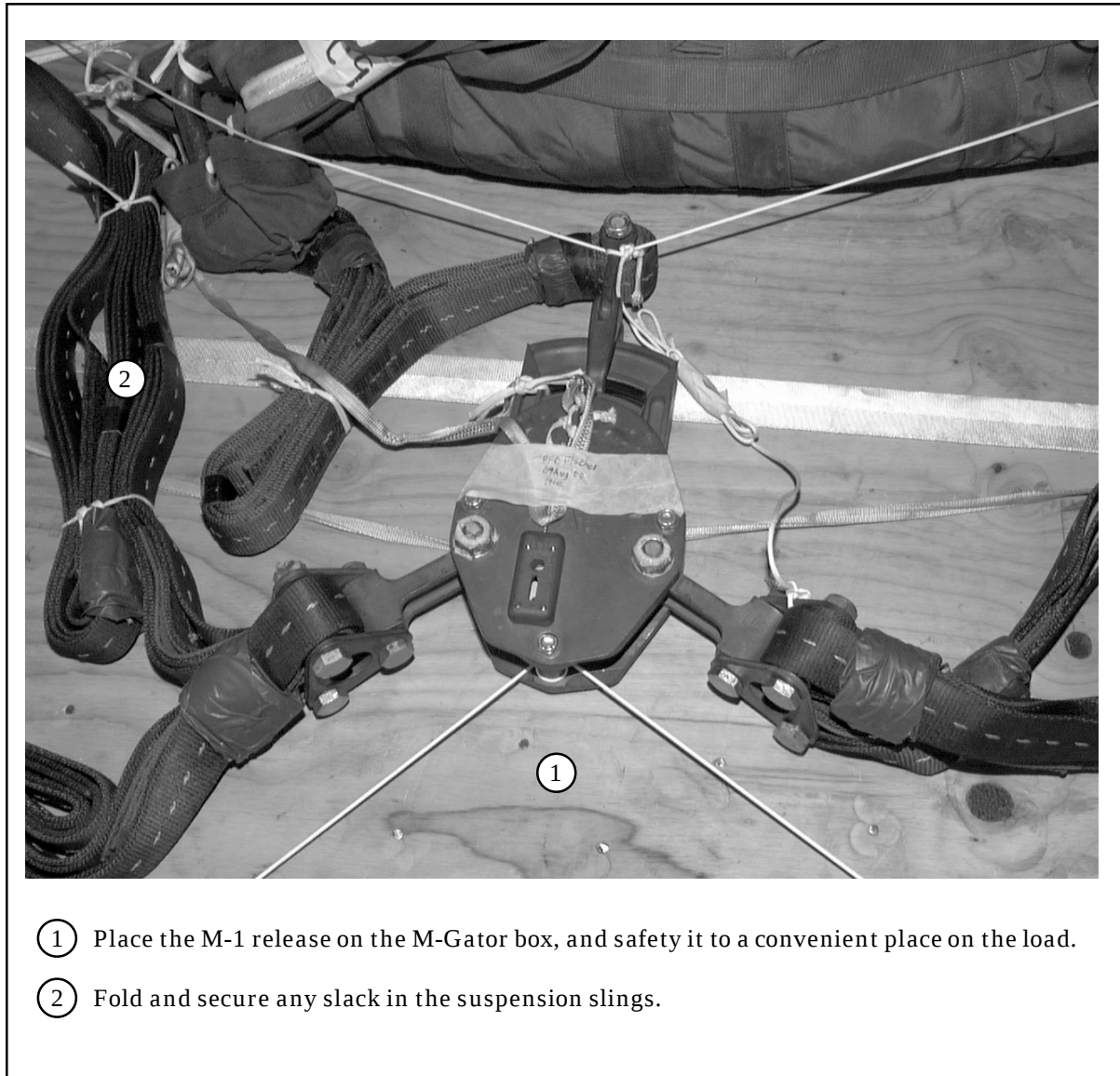


Figure 1-16. Parachute Release System Installed

POSITIONING EXTRACTION PARACHUTE

1-14. Select the extraction parachute and extraction line needed using the extraction line requirements table in FM 10-500-2/TO 13C7-1-5. Place the extraction parachute and extraction line on the load for installation inside aircraft.

INSTALLING PROVISIONS FOR EMERGENCY RESTRAINTS

1-15. Select and install provisions for emergency restraints according to the emergency aft restraints requirements in FM 10-500-2/TO 13C7-1-5.

MARKING RIGGED LOAD

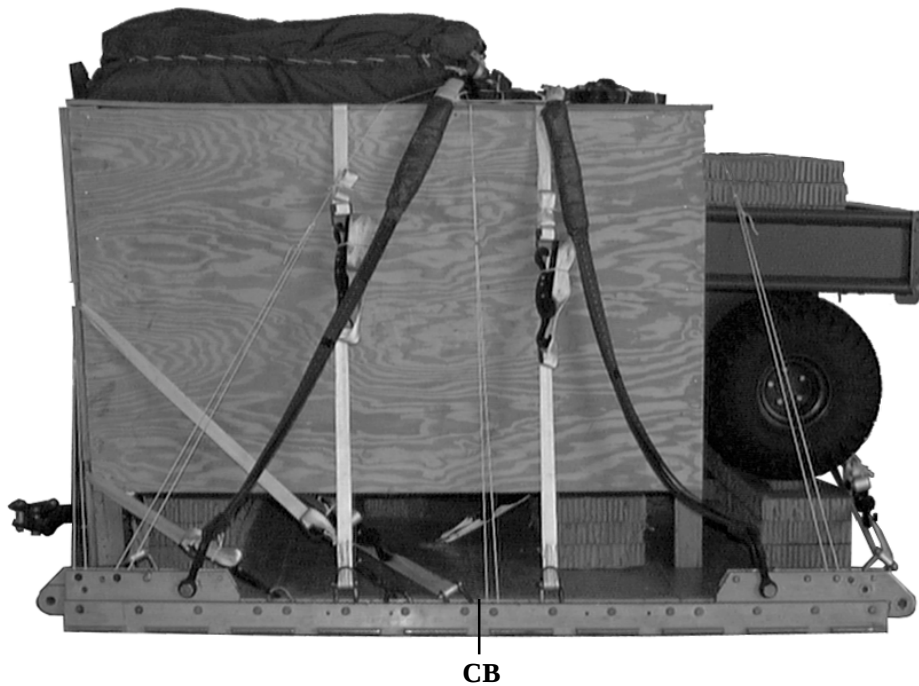
1-16. Mark the rigged load according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 1-17. Complete the Shipper's Declaration for Dangerous Goods. If the load varies from the one shown, the weight, height, tip-off curve, CB, and parachute requirements must be recomputed.

EQUIPMENT REQUIRED

1-17. The equipment required to rig this load is listed in Table 1-1.

CAUTION

Make the final rigger inspection required by FM 10-500-2/TO 13C7-1-5 before load leaves rigging site.



RIGGED LOAD

Weight	3,120 pounds
Height	78 inches
Width	108 inches
Overall Length	125 inches
Overhang: Front (bed).....	11 inches
Rear (EFTC).....	18 inches
Center of Balance (from front edge of platform)	49 inches

Figure 1-17. M-Gator Rigged on a 8-Foot Platform for Low-Velocity Airdrop

Table1-1. Equipment required for rigging M-Gator on an 8-foot platform for low-velocity airdrop

National Stock Number	Item	Quantity
8040-00-273-8713	Adhesive paste, 1-gal	As required
1670-01-035-6054	Bridle, extraction line bag (C-17)	1
4030-00-090-5354	Clevis, suspension, 1-in (large)	5
4020-00-240-2146	Cord, nylon, type III, 550-lb	As required
1670-00-434-5783	Coupling, airdrop, extraction force transfer with cable, 12-ft	1
1670-00-360-0328	Cover: Clevis, large	1
1670-01-183-2678	Leaf, extraction line (line bag)	2
1670-01-064-4452	Line, drogue (for C-17) 60-ft (1-loop), type XXVI	1
1670-01-064-4452	Line, extraction: For C-130: 60-ft (1-loop), type XXVI	1
1670-01-107-7652	For C-141: 160-ft (1-loop), type XXVI	1
1670-01-107-7652	For C-5: 160-ft (1-loop), type XXVI	1
1670-01-107-7652	For C-17: 160-ft (1-loop), type XXVI	1
5306-00-435-8994	Link assembly: Two-point, 3 3/4-in Bolt, 1-in diam, 4-in long	1 (2)
5310-00-232-5165	Nut, 1-in, hexagonal	(2)
1670-00-003-1954	Plate, side, 3 3/4-in	(2)
5365-00-007-3414	Spacer, large	(2)
5306-00-435-8994	Two-point, 3 3/4-in (for C-17) Bolt, 1-in diam, 4-in long	1 (2)
5310-00-232-5165	Nut, 1-in, hexagonal	(2)
1670-00-003-1954	Plate, side, 3 3/4-in	(2)
5365-00-007-3414	Spacer, large	(2)
N/A	Link, towed mechanized release (H-Block), C-17 aircraft	1
5510-00-220-6146	Lumber: 2- by 4-in	As required
5510-00-220-6148	2- by 6-in	As required
5315-00-010-4659	Nail, steel wire, common, 8d	As required
1670-00-753-3928	Pad, energy dissipating, honeycomb, 3- by 36- by 96-in	9 sheets

Table 1-1. Equipment required for rigging M-Gator on an 8-foot platform for low-velocity airdrop (continued)

National Stock Number	Item	Quantity
1670-01-016-7841	Parachute: Cargo, G-11B	1
1670-01-063-3715	Cargo, extraction, 15ft	1
1670-01-063-3715	Drogue, 15ft (for C-17)	1
1670-01-353-8425	Platform, airdrop, type V, 8-foot: Bracket assembly, coupling	(1)
1670-01-162-2372	Clevis assembly, type V	(14)
1670-01-353-8424	Extraction bracket assembly	(1)
1670-01-162-2381	Link, tandem, suspension link assembly	(4)
5530-00-128-4981	Plywood, 3/4- by 48- by 96-in	6 sheets
1670-01-097-8816	Release, cargo parachute, M-1	1
	Sling, cargo airdrop	
	For suspension:	
1670-01-062-6303	12-ft (2-loop), type XXVI nylon webbing	4
	For deployment:	
1670-01-062-6304	9-ft (2-loop), type XXVI nylon webbing	1
	For riser extention:	
1670-01-062-6301	3-ft (2-loop), type XXVI nylon webbing	1
7510-00-266-5016	Tape, adhesive, 2-in	As required
1670-00-937-0271	Tie-down assembly, 15-ft	16
	Webbing:	
8305-00-268-2411	Cotton, 1/4-in, type I	As required
8305-00-082-5725	Nylon, tubular, 1/2-in	As required

CHAPTER 2

Rigging Two Military Utility Vehicles (M-Gator) And Equipment Box on a 20-Foot Platform for Low-Velocity Airdrop

DESCRIPTION OF LOAD

2-1. This load consists of two John Deere Diesels, which have been named M-Gator and an equipment box weighing 1,600 pounds minimum or 2000 pounds maximum of unit specific equipment. It is rigged on a 20-foot platform. The load shown has a rigged weight of 8,520 pounds. It has a length of 258 inches, width of 108 inches, and height of 78 inches, with a center of balance of 124 inches. The load is rigged with two G-11 cargo parachutes.

PREPARING PLATFORM

2-2. Inspect, or assemble and inspect, a 20-foot platform as outlined in TM 10-1670-268-20&P/TO 13C7-52-22. Prepare a 20-foot platform using 40 tiedown clevises as shown in Figure 2-1.

BUILDING M-GATOR BOXES

2-3. Build two M-Gator boxes as outlined in chapter 1, paragraph 1-7.

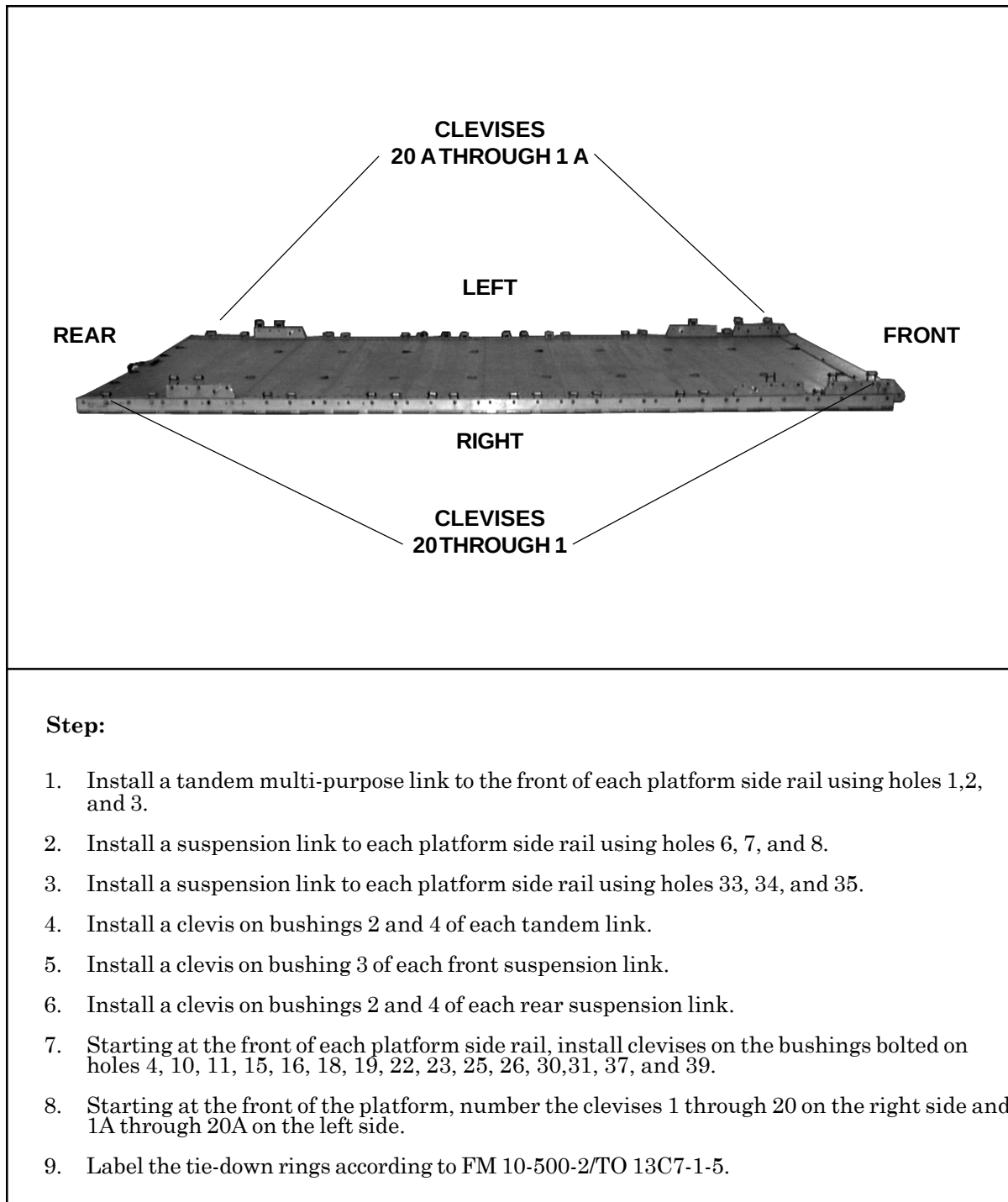


Figure 2-1. Platform Prepared

BUILDING HONEYCOMB STACKS

2-4. Refer to paragraph 1-3 for building honeycomb stacks 1 and 3. Build honeycomb stack 2 as in Figure 2-2.

Stack Number	Pieces	Width (inches)	Length (inches)	Material	Instructions
2	2	96	36	Honeycomb	Glue and place one on top of the other.

Figure 2-2. Honeycomb Stack Prepared

POSITIONING HONEYCOMB STACK 2

2-5. Position honeycomb stack 2 centered on platform and as shown in Figure 2-3.

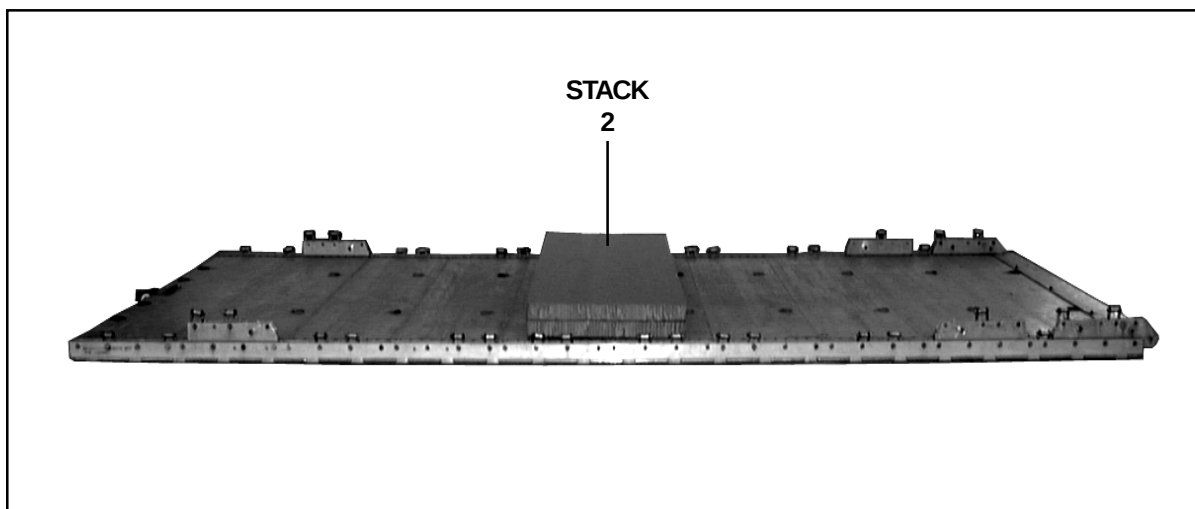


Figure 2-3. Honeycomb Stack 2 Positioned

PREPARING THE M-GATORS

2-6. Prepare the M-Gators according to chapter 1, paragraph 1-4 with the exception of padding the tailgate as shown in Figure 2-4.

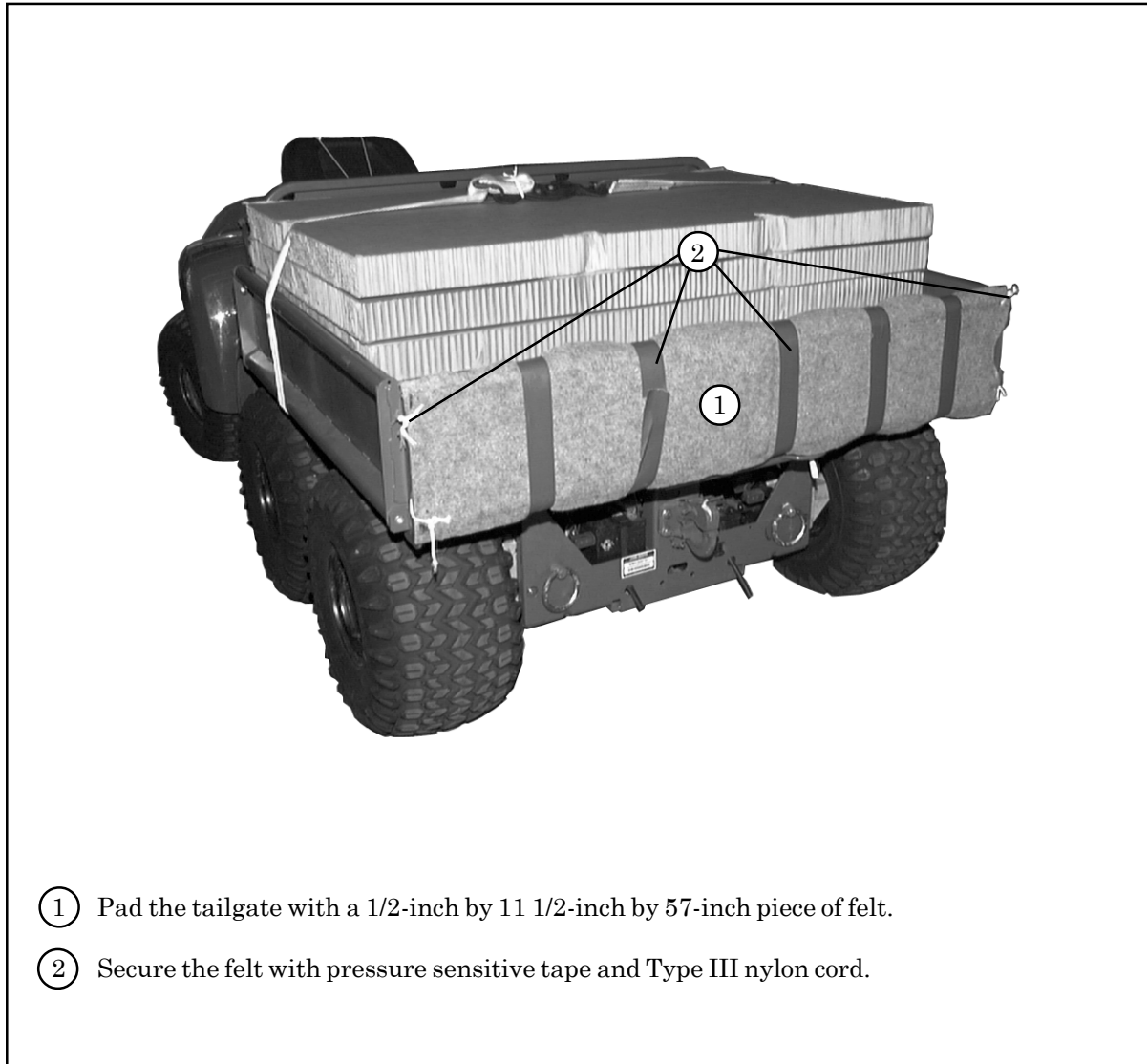


Figure 2-4. M-Gators Prepared

BUILDING EQUIPMENT BOX

2-7. Build the equipment box as shown in Figure 2-5.

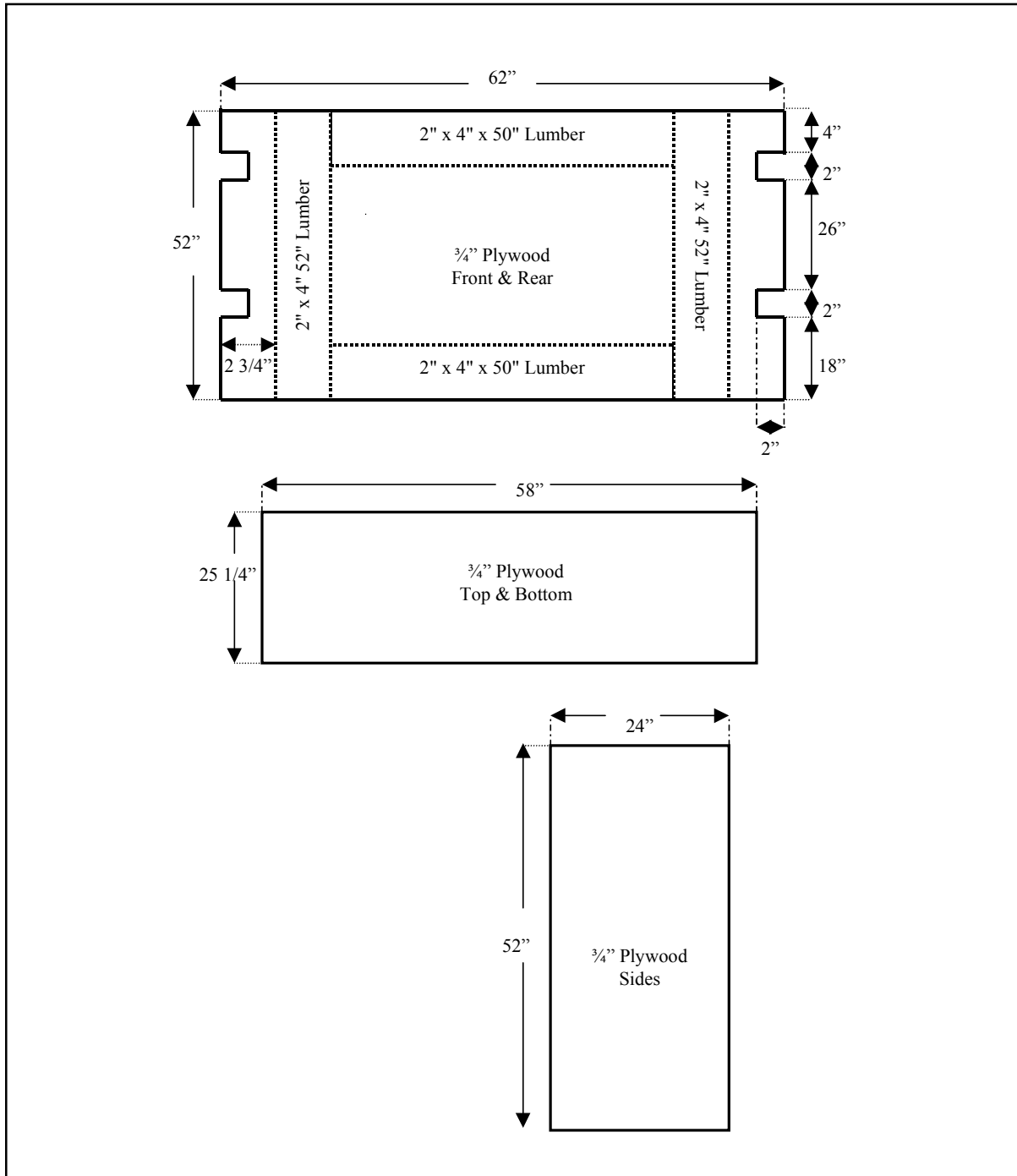


Figure 2-5. Equipment Box Built

POSITIONING AND LASHING THE EQUIPMENT BOX

2-8. Position the lashings and the equipment box as shown in Figure 2-6.

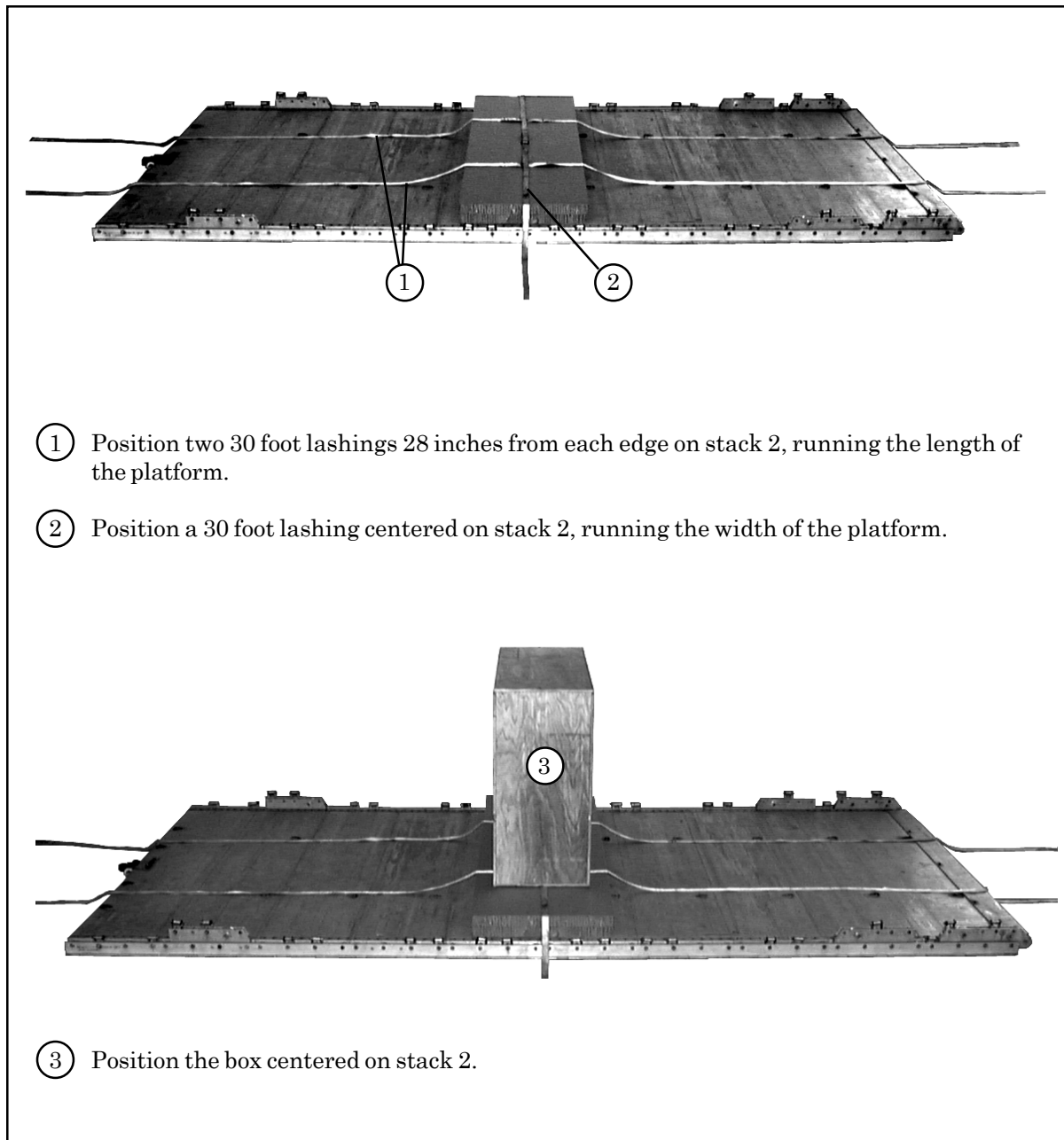


Figure 2-6. Equipment Box Positioned and Lashed

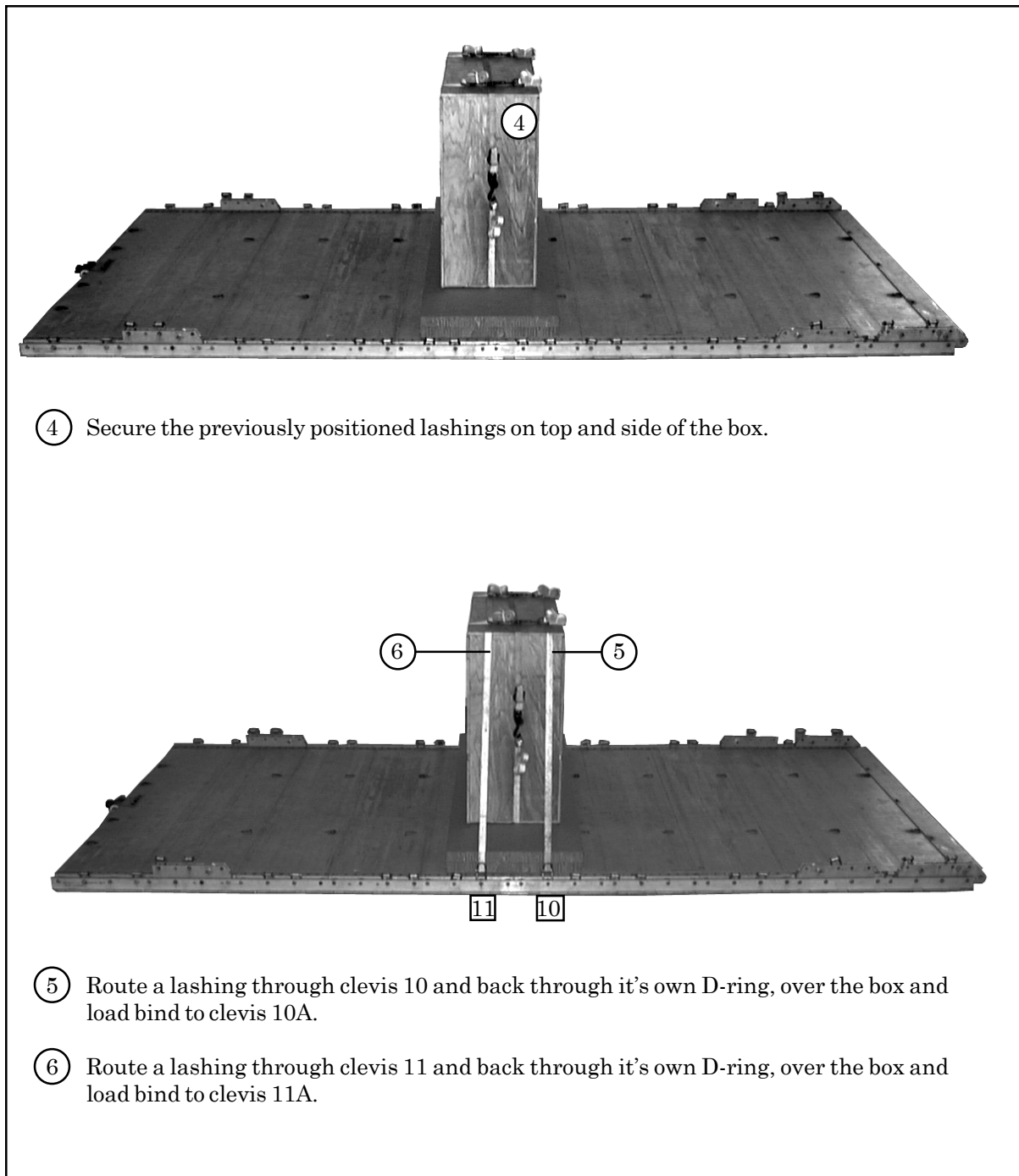


Figure 2-6. Equipment Box Positioned and Lashed (Continued)

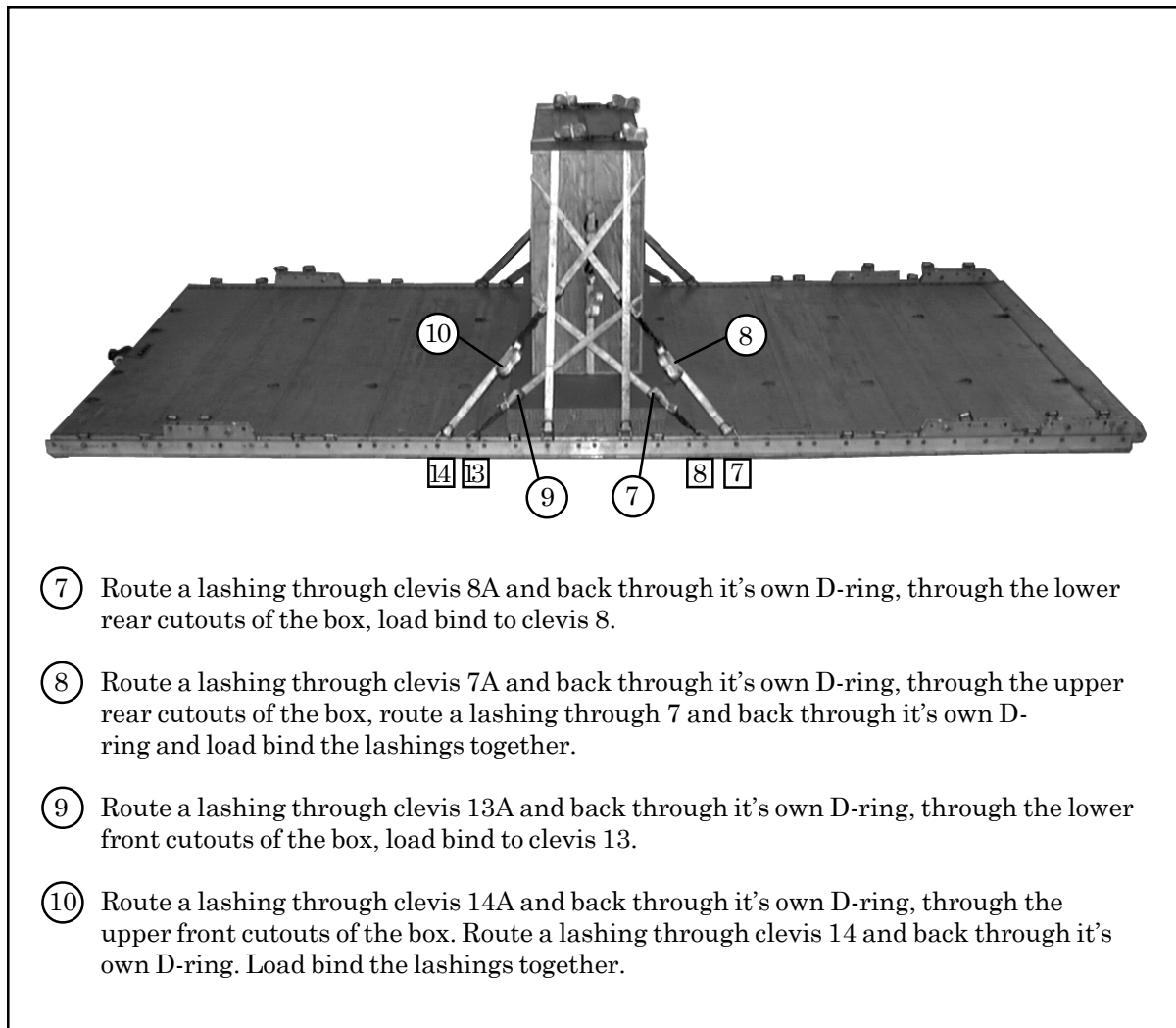


Figure 2-6. Equipment Box Positioned and Lashed (Continued)

POSITIONING M-GATOR HONEYCOMB STACKS

2-9. Position honeycomb stacks 1 and 3 on the platform as shown in Figure 2-7.

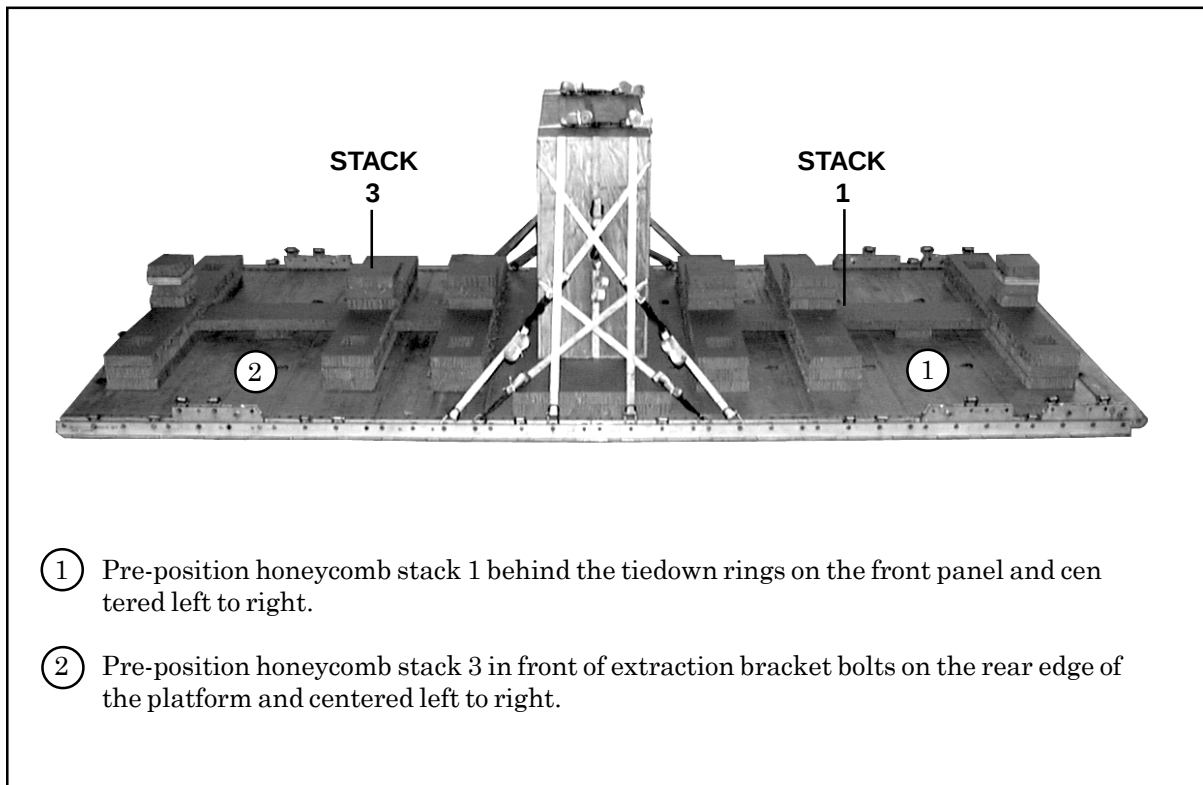
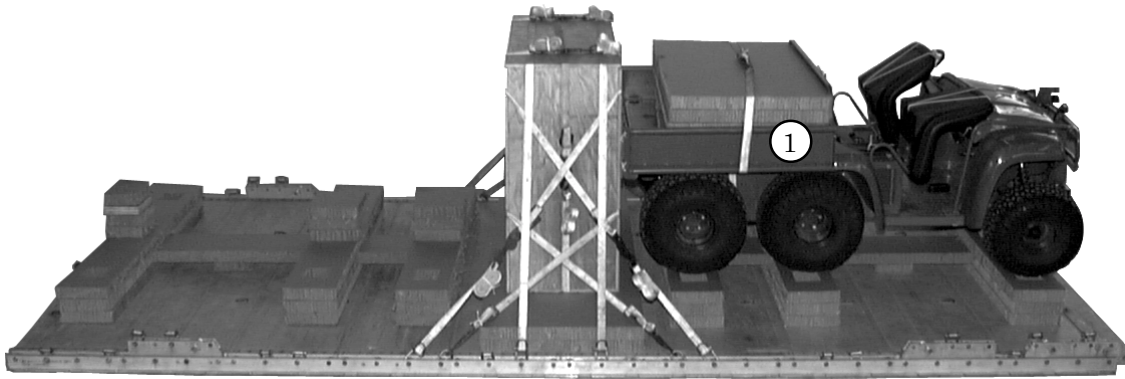


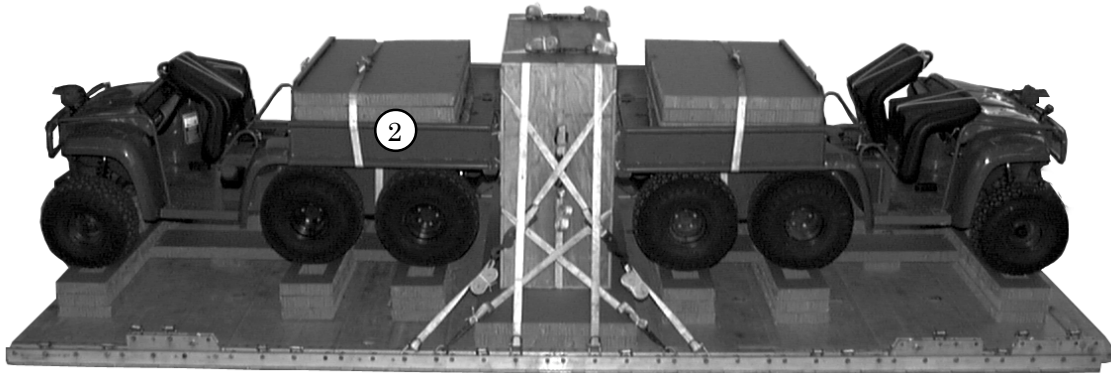
Figure 2-7. Honeycomb Stacks 1 and 3 Positioned on Platform

POSITIONING LOAD

2-10. Use four 12-foot (2-loop), type XXVI, nylon slings to lift and position the M-Gator. Attach large clevis assemblies to each sling. Using two front and two rear lifting points, attach one clevis to each lifting point. Position the M-Gators as shown in Figure 2-8.



- ① Position the front M-Gator on honeycomb stack 1 ensuring the felt tailgate is against the center equipment box. Adjust the honeycomb stack so each tire will be centered over a cutout in the honeycomb stack.



- ② Position the rear M-Gator on honeycomb stack 3 ensuring the felt tailgate is against the center equipment box. Each tire will be centered over a cutout in the honeycomb stack.

Figure 2-8. M-Gators Positioned

LASHING M-GATORS

2-11. Lash the M-Gators to the platform according to FM 10-500-2/TO 13C7-1-5 and as shown in Figures 2-9 through 2-15.

NOTE: Place all load binders near the platform in case adjustments to the lashings are needed.

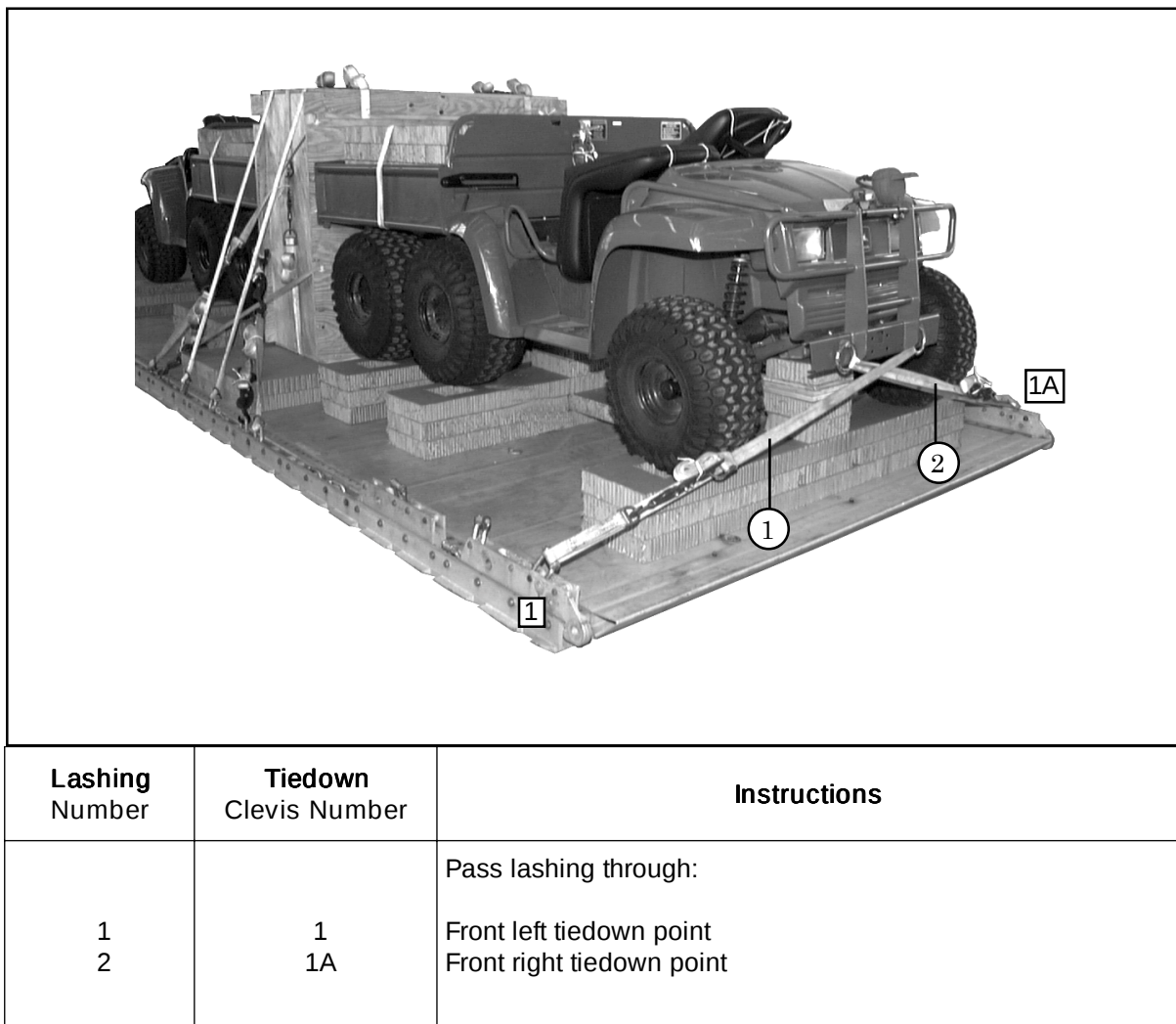


Figure 2-9. Lashings 1 and 2 Installed

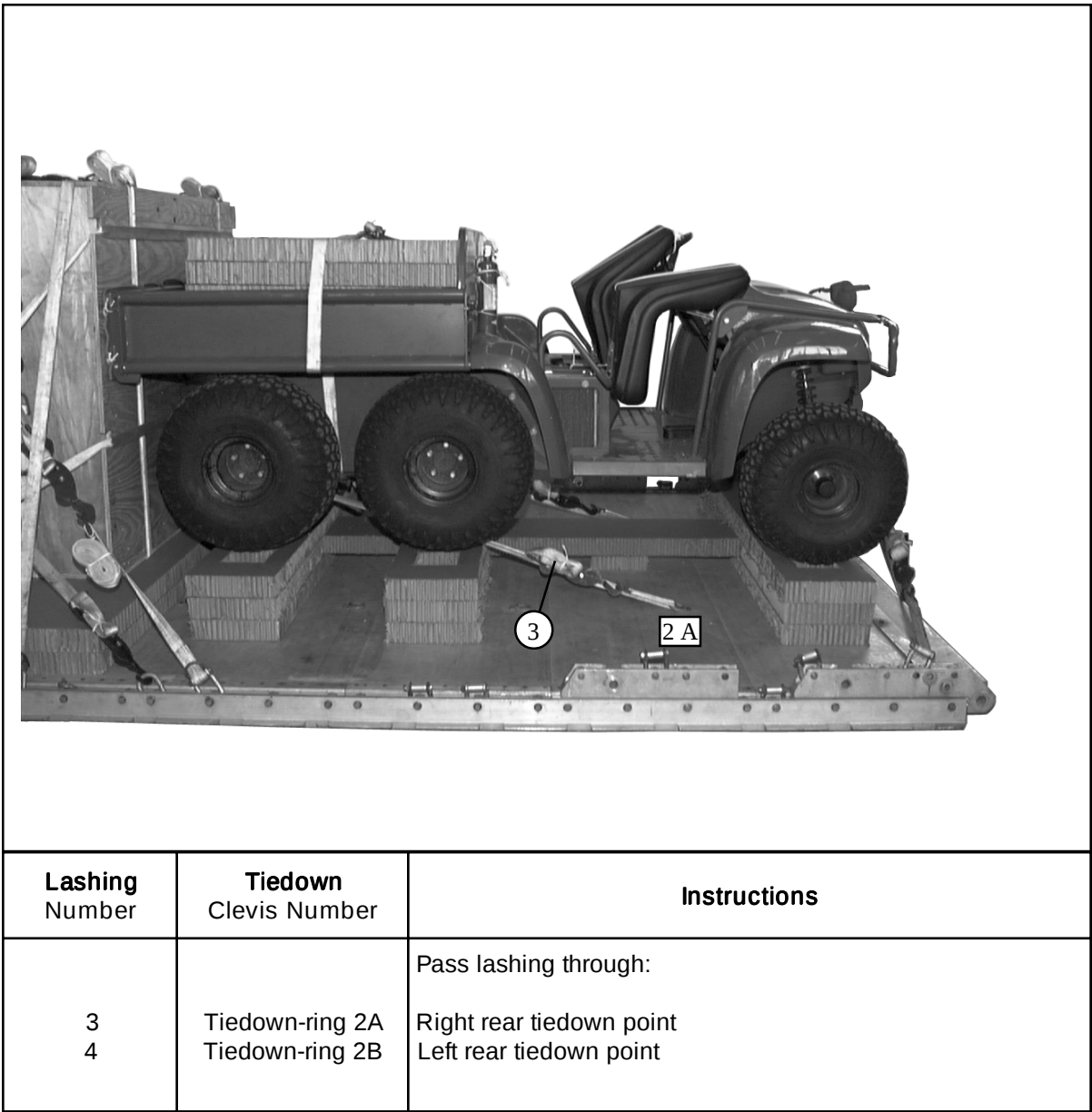
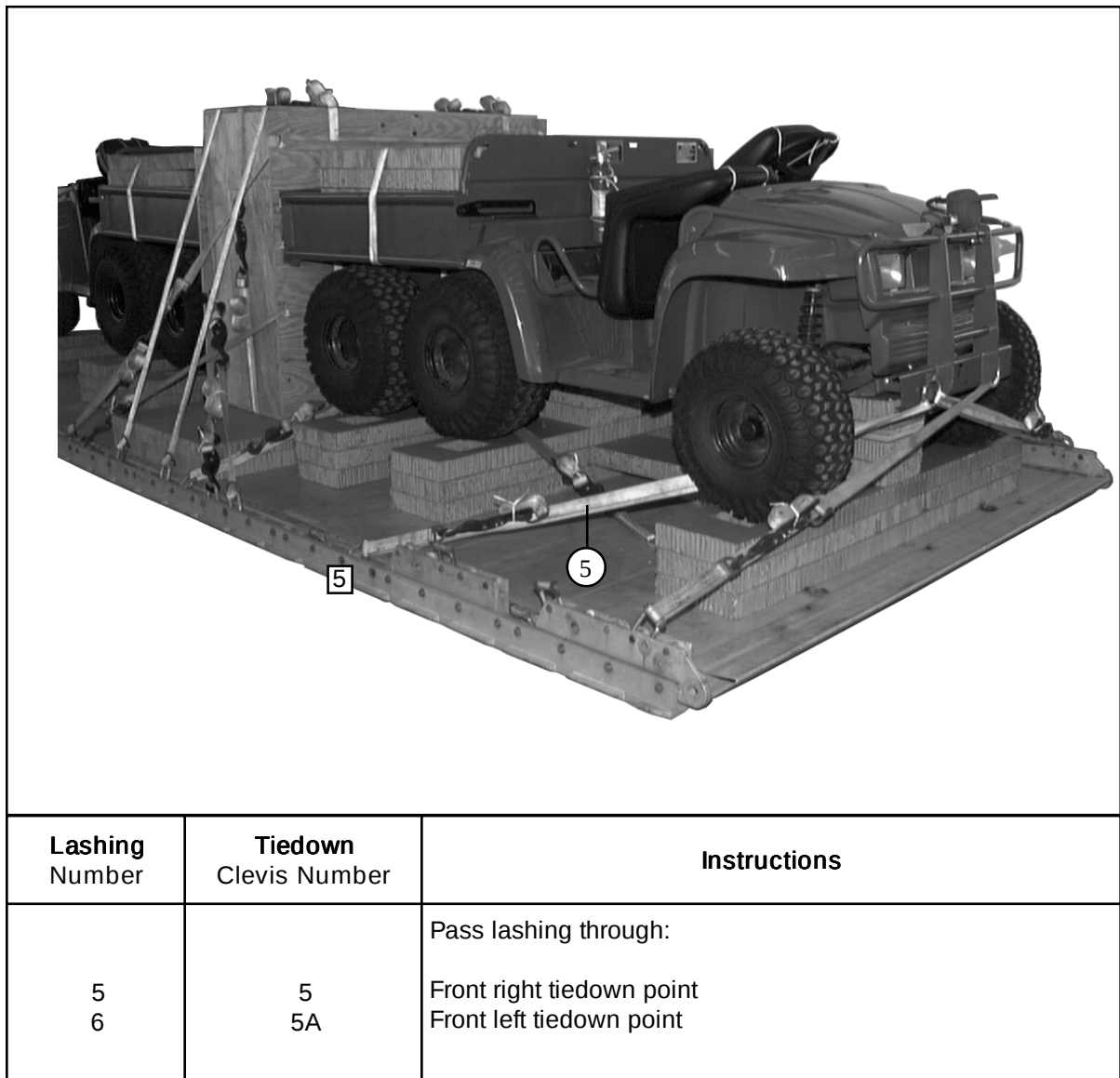
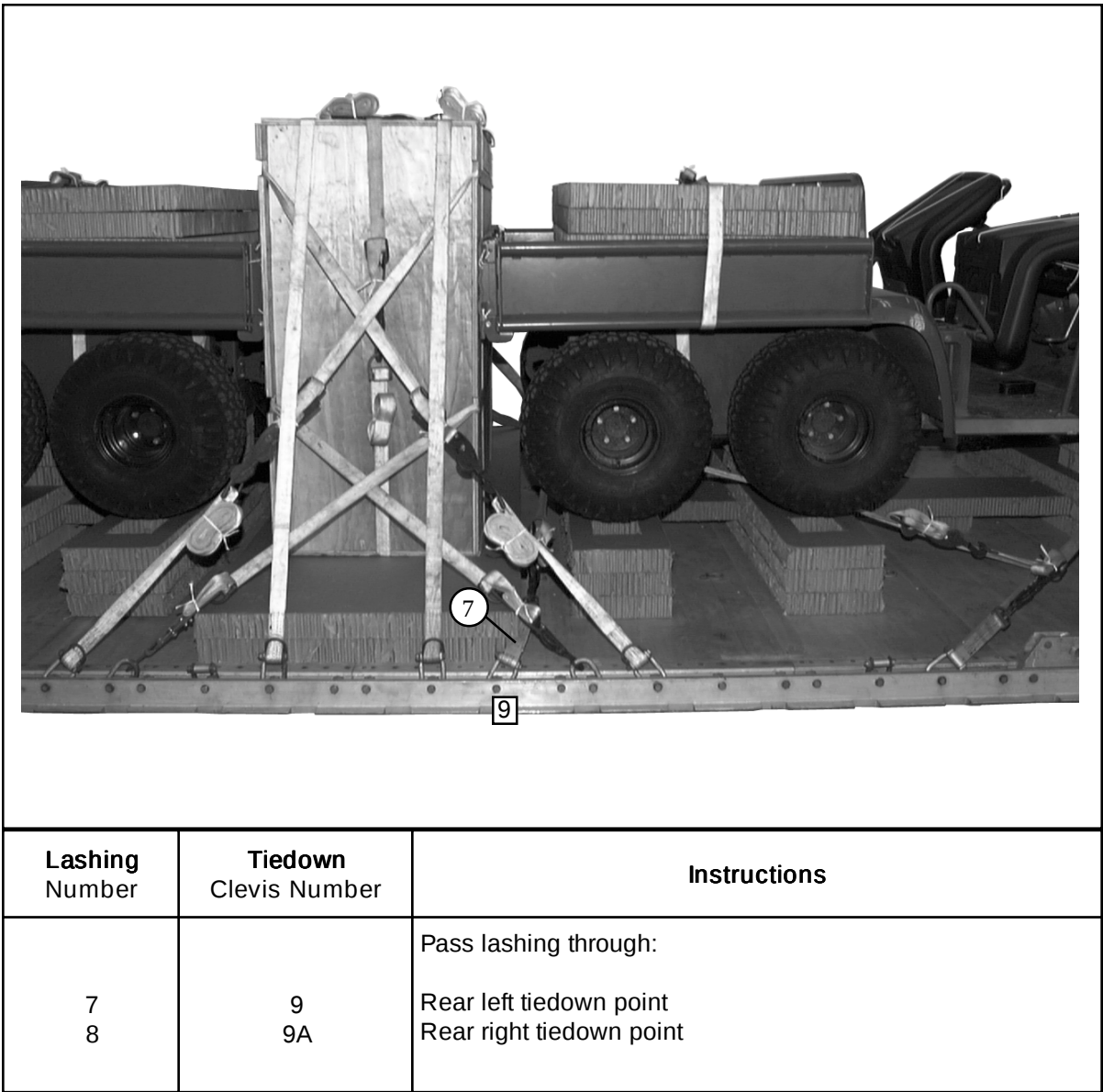


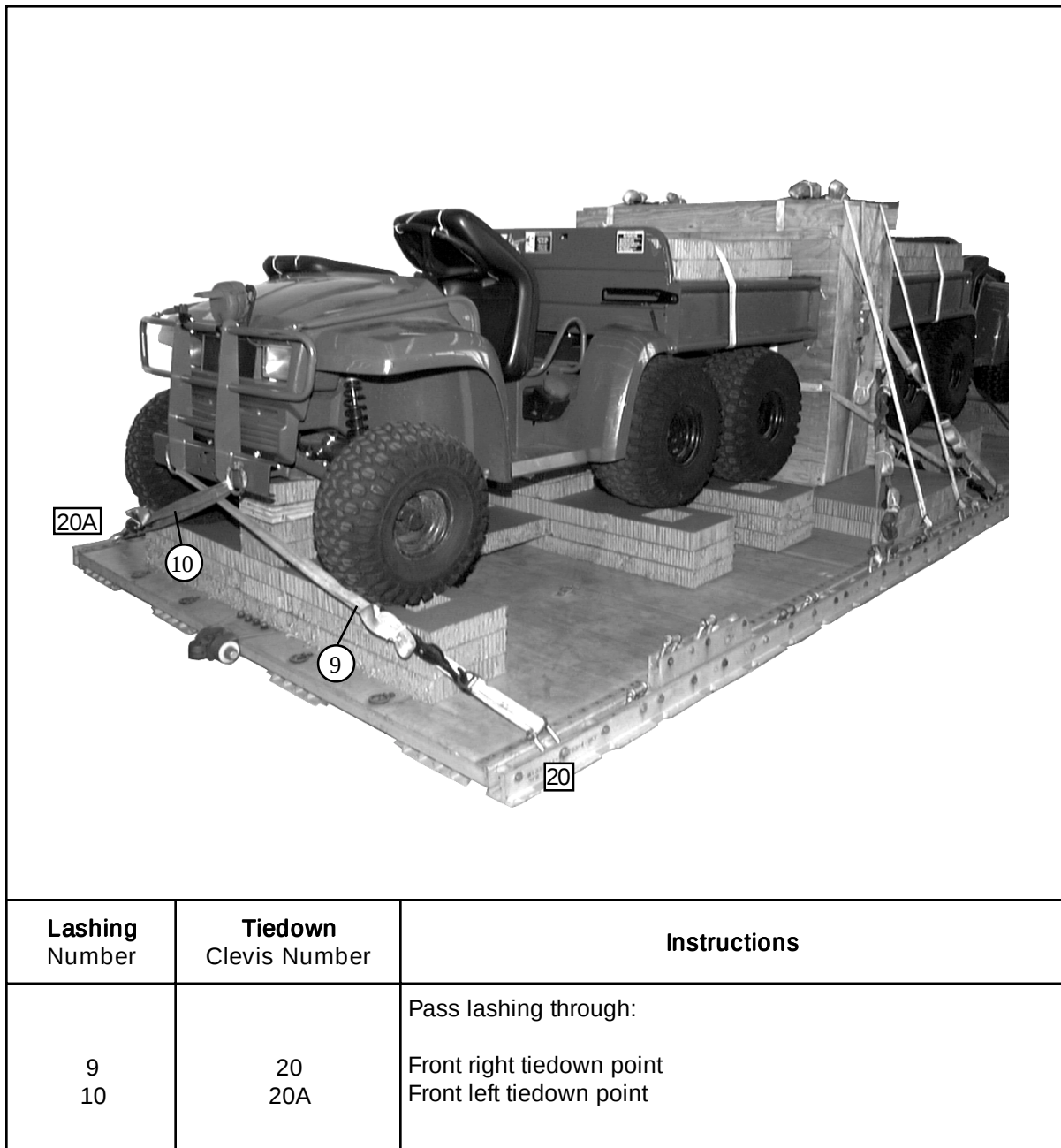
Figure 2-10. Lashings 3 and 4 Installed

**Figure 2-11. Lashings 5 and 6 Installed**



Lashing Number	Tiedown Clevis Number	Instructions
7 8	9 9A	Pass lashing through: Rear left tiedown point Rear right tiedown point

Figure 2-12. Lashings 7 and 8 Installed

**Figure 2-13. Lashings 9 and 10 Installed**

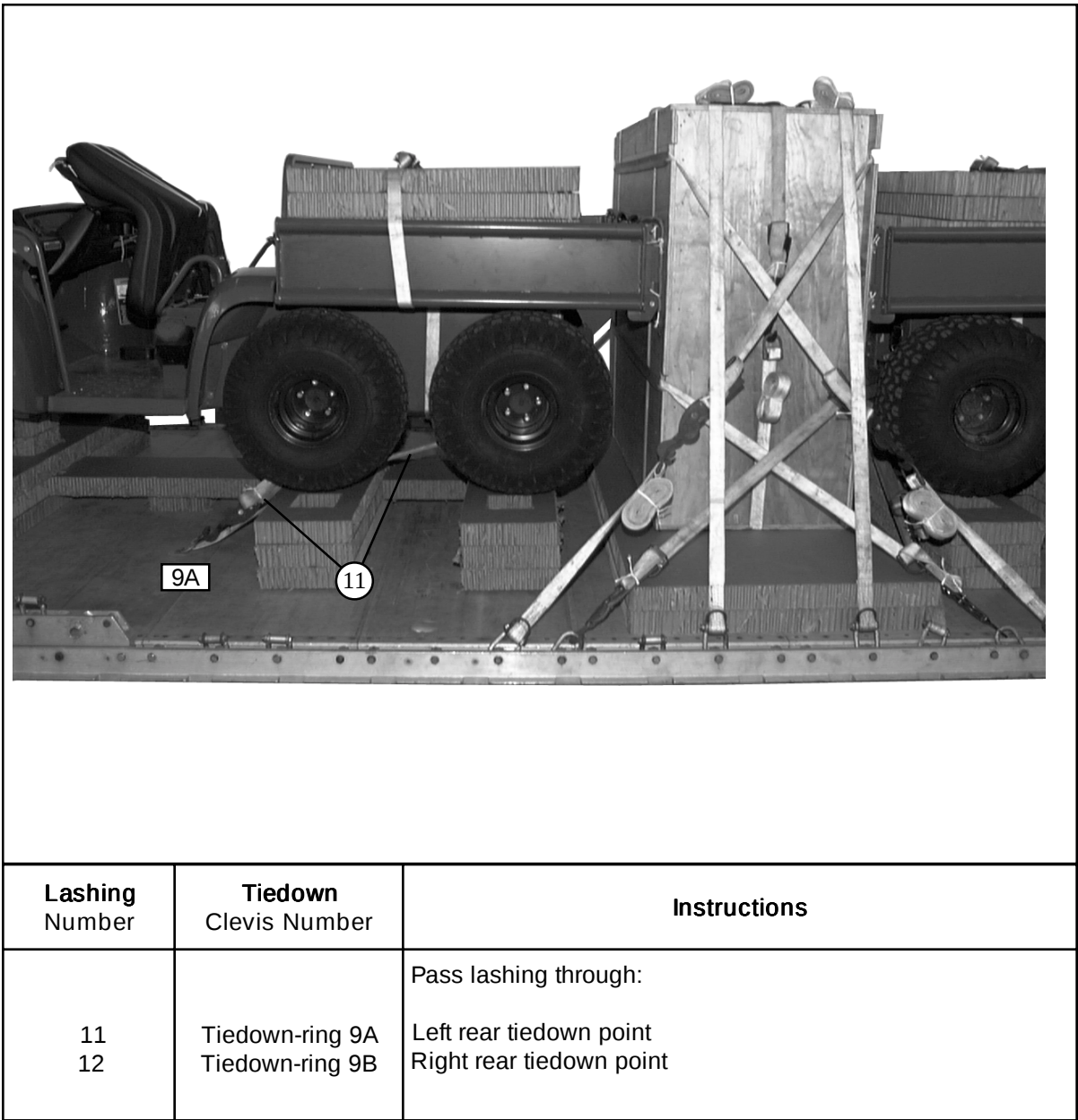


Figure 2-14. Lashings 11 and 12 Installed

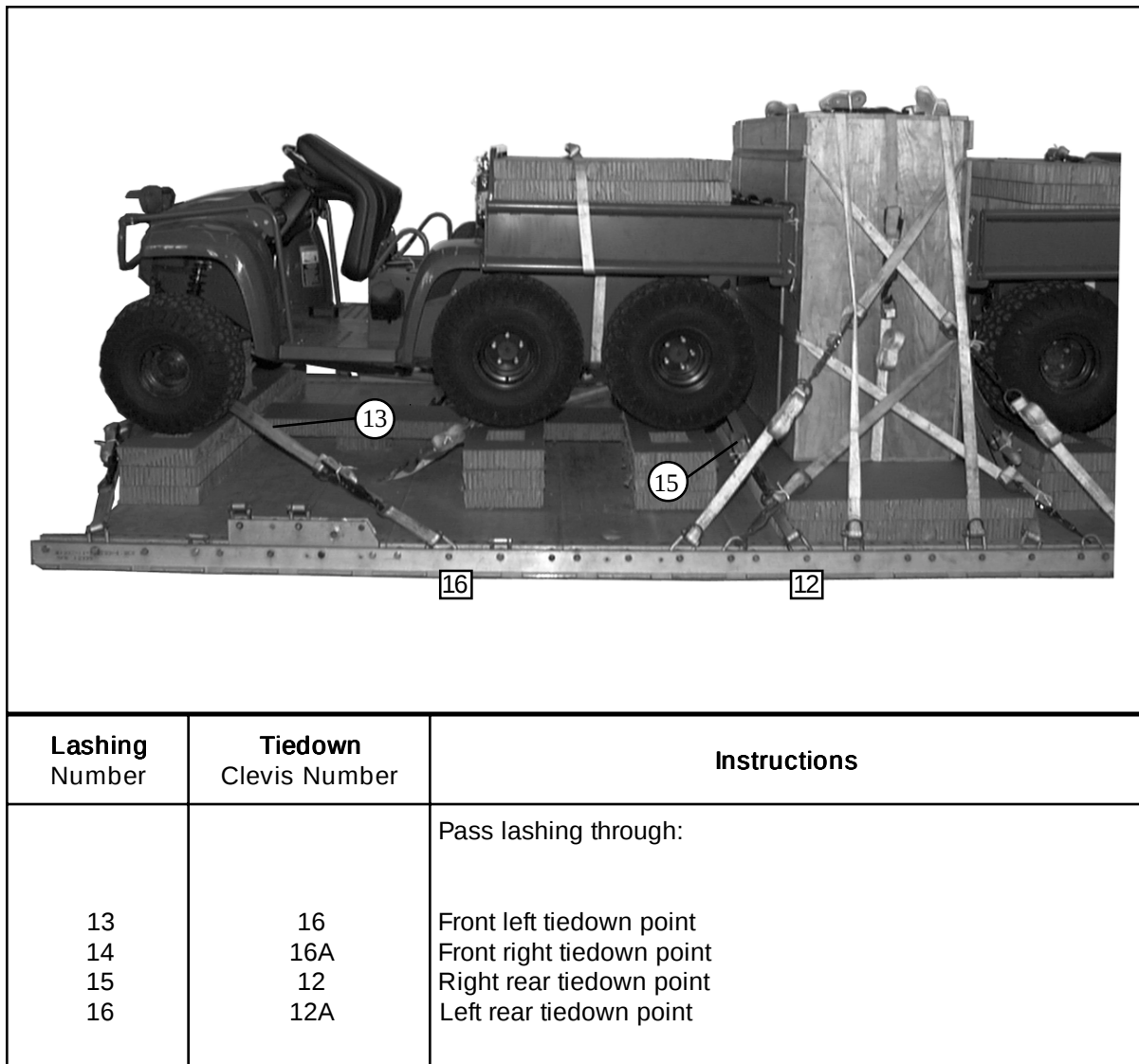
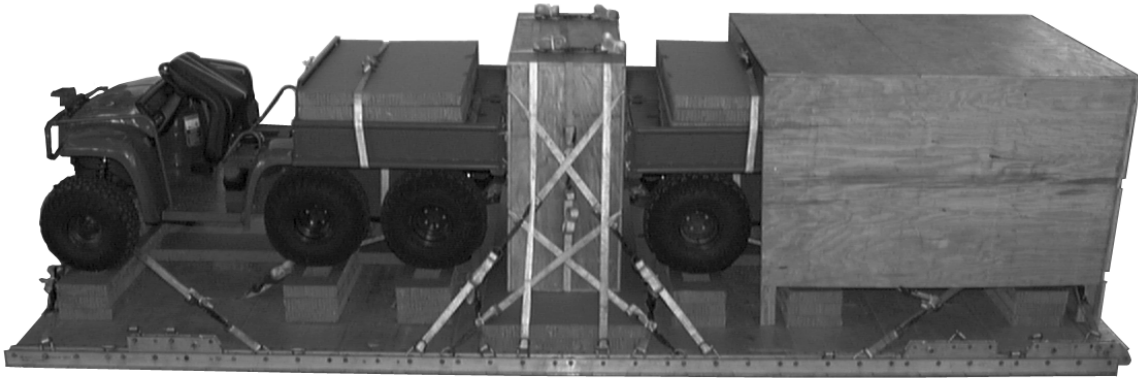


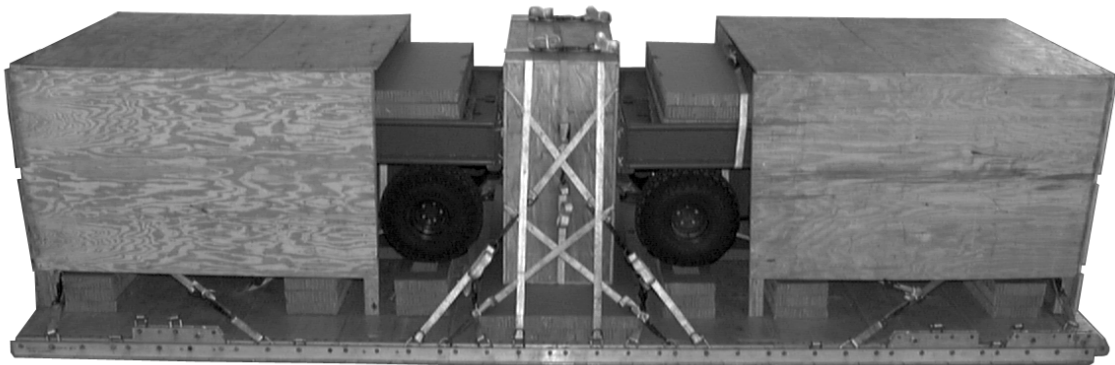
Figure 2-15. Lashings 13 and 14 Installed

POSITIONING M-GATOR BOXES

2-12. Position M-Gator boxes as shown in Figure 2-16.



Position the front box over the front M-Gator aligning the bottom front edge of the box with the front edge of the platform.



Position the rear box over the rear M-Gator aligning the bottom front edge of the box with the rear edge of the platform.

Figure 2-16. M-Gator Boxes Positioned

LASHING M-GATOR BOXES

2-13. Lash the M-Gator boxes to the platform according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 2-17.

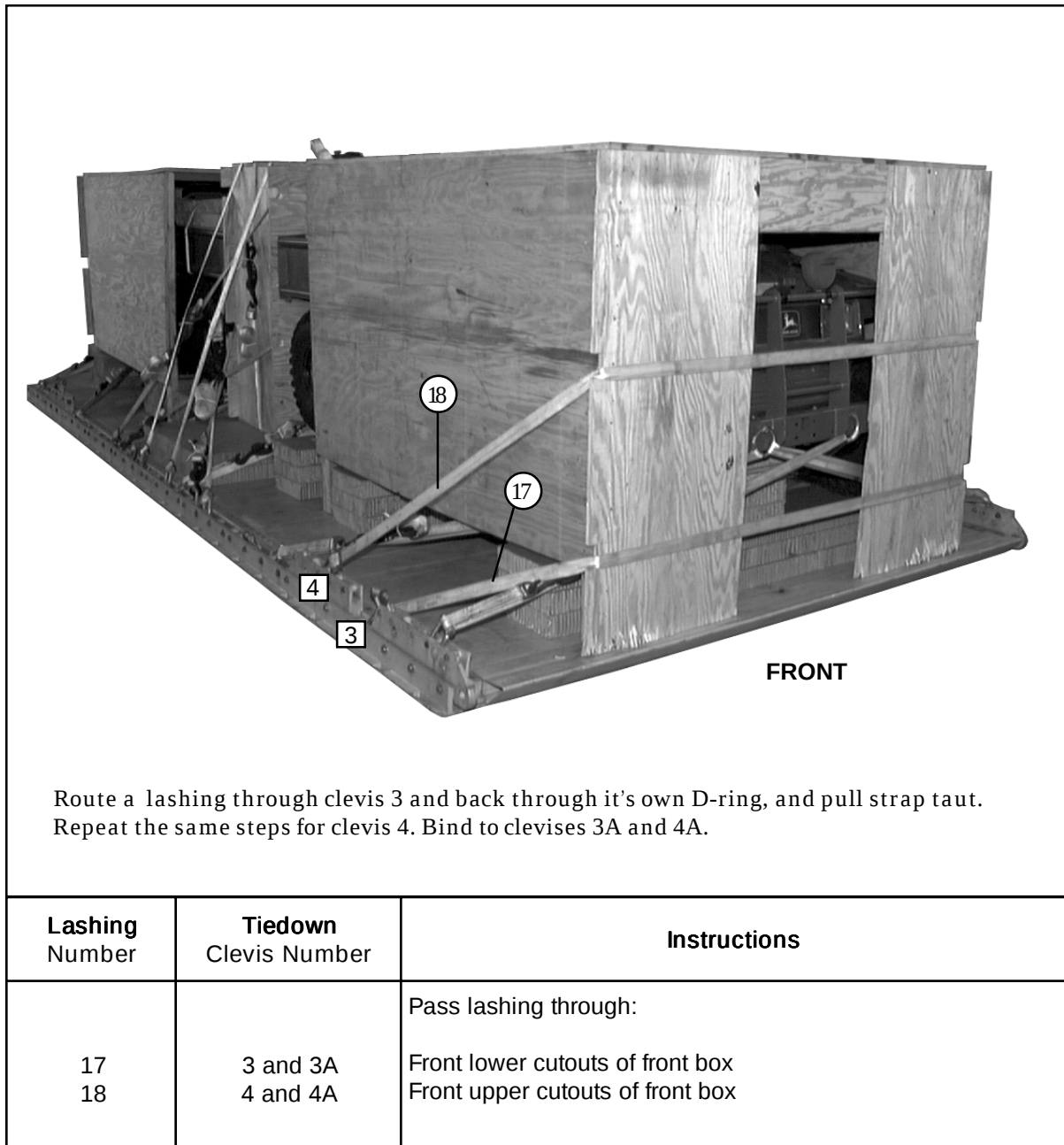
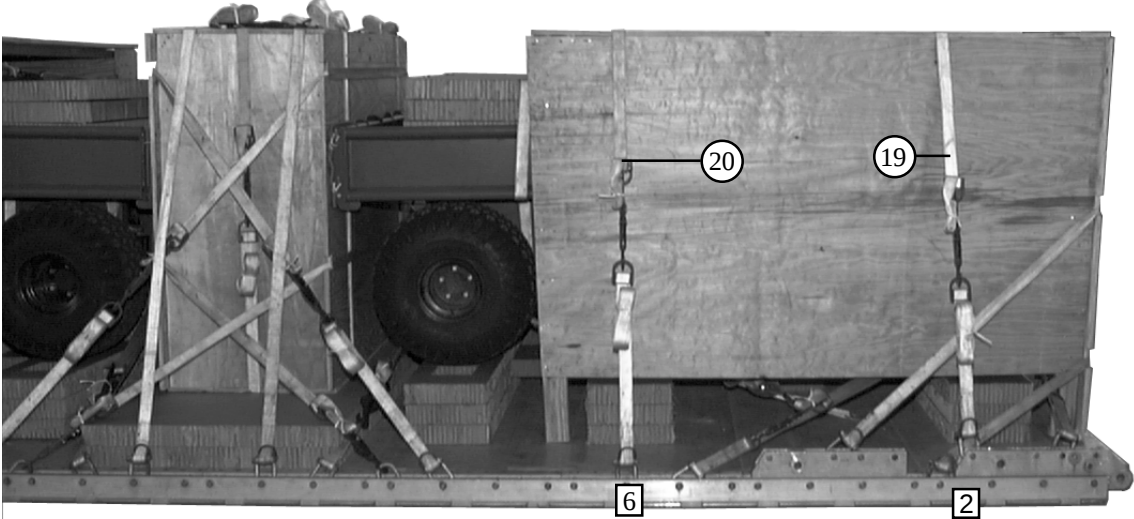


Figure 2-17. M-Gator Boxes Lashed



Route a lashing through clevis 2 and back through it's own D-ring, and pull strap taut. Repeat the same steps for clevises 2A, 6, and 6A.

Lashing Number	Tiedown Clevis Number	Instructions
19 20	2 and 2A 6 and 6A	Pass lashing through: Over top of box and bind on right side of box. Over top of box and bind on right side of box.

Figure 2-17. M-Gator Boxes Lashed (continued)

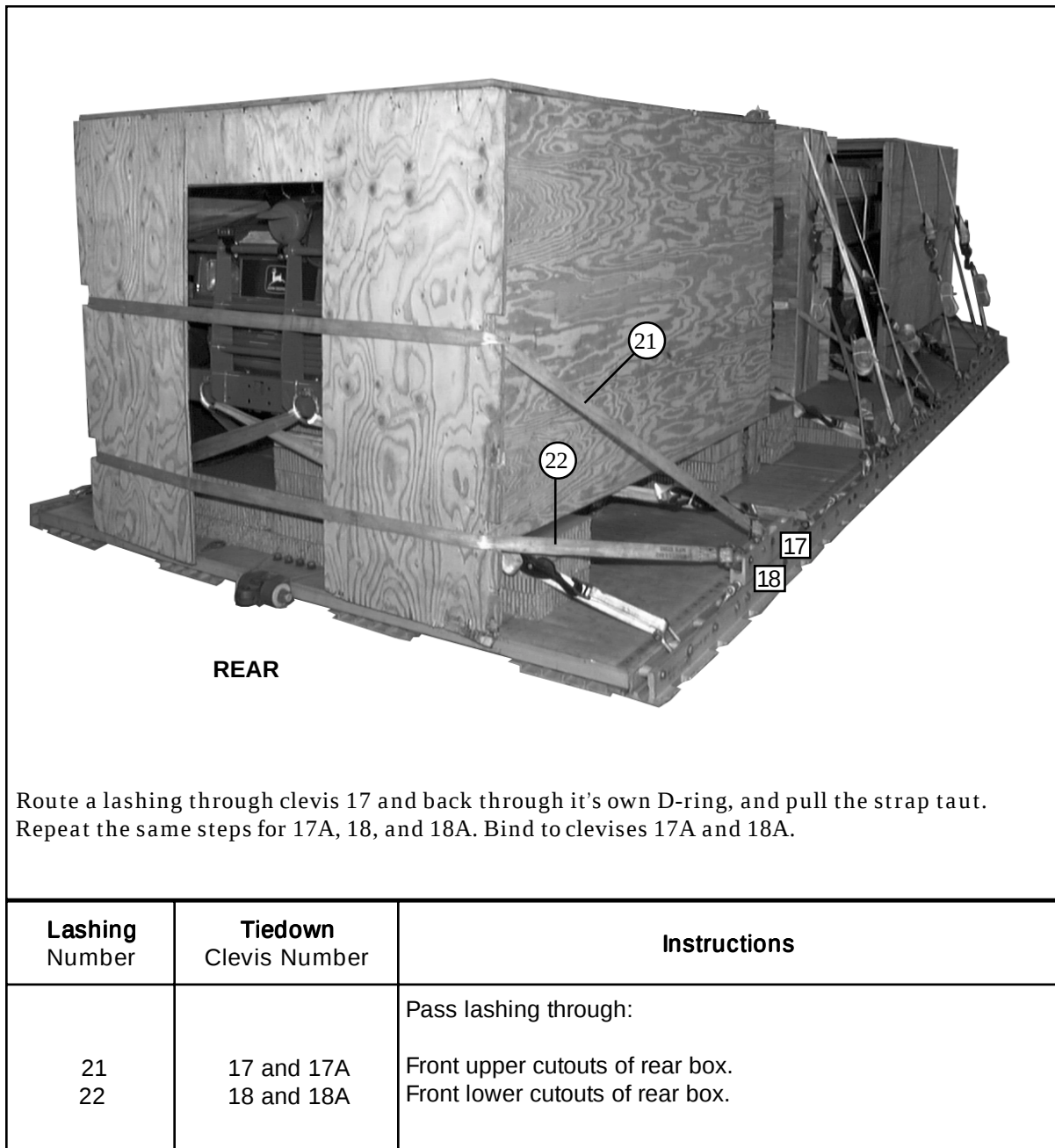
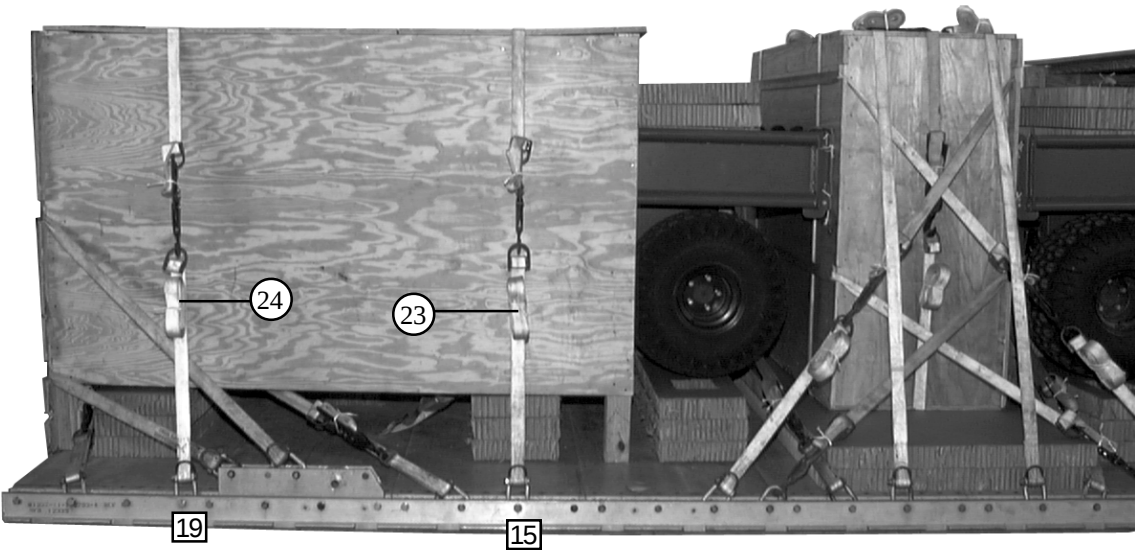


Figure 2-17. M-Gator Boxes Lashed (continued)



Route a lashing through clevis 15 and back through it's own D-ring, and pull strap taut. Repeat the same steps for clevises 15A, 19, and 19A.

Lashing Number	Tiedown Clevis Number	Instructions
23 24	15 and 15A 19 and 19A	Pass lashing: Over top of box and bind on left side of box. Over top of box and bind on left side of box.

Figure 2-17. M-Gator Boxes Lashed (continued)

INSTALLING SUSPENSION SLINGS

2-14. Install four 16-foot (2-loop), type XXVI nylon slings as suspension slings according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 2-18.

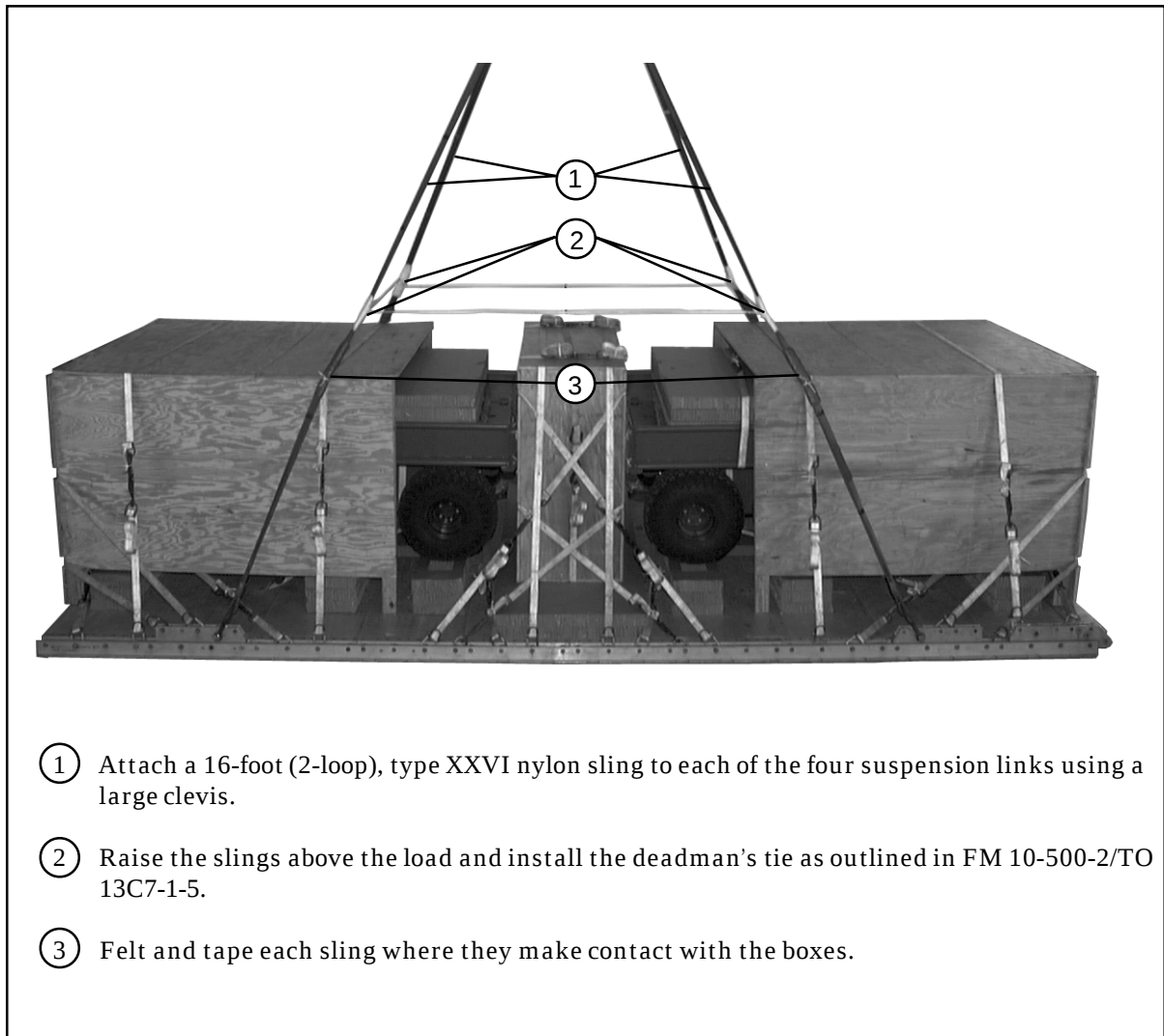


Figure 2-18. Suspension Slings Installed

STOWING CARGO PARACHUTES

2-15. Prepare, stow, and restrain two G-11 cargo parachutes according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 2-19.

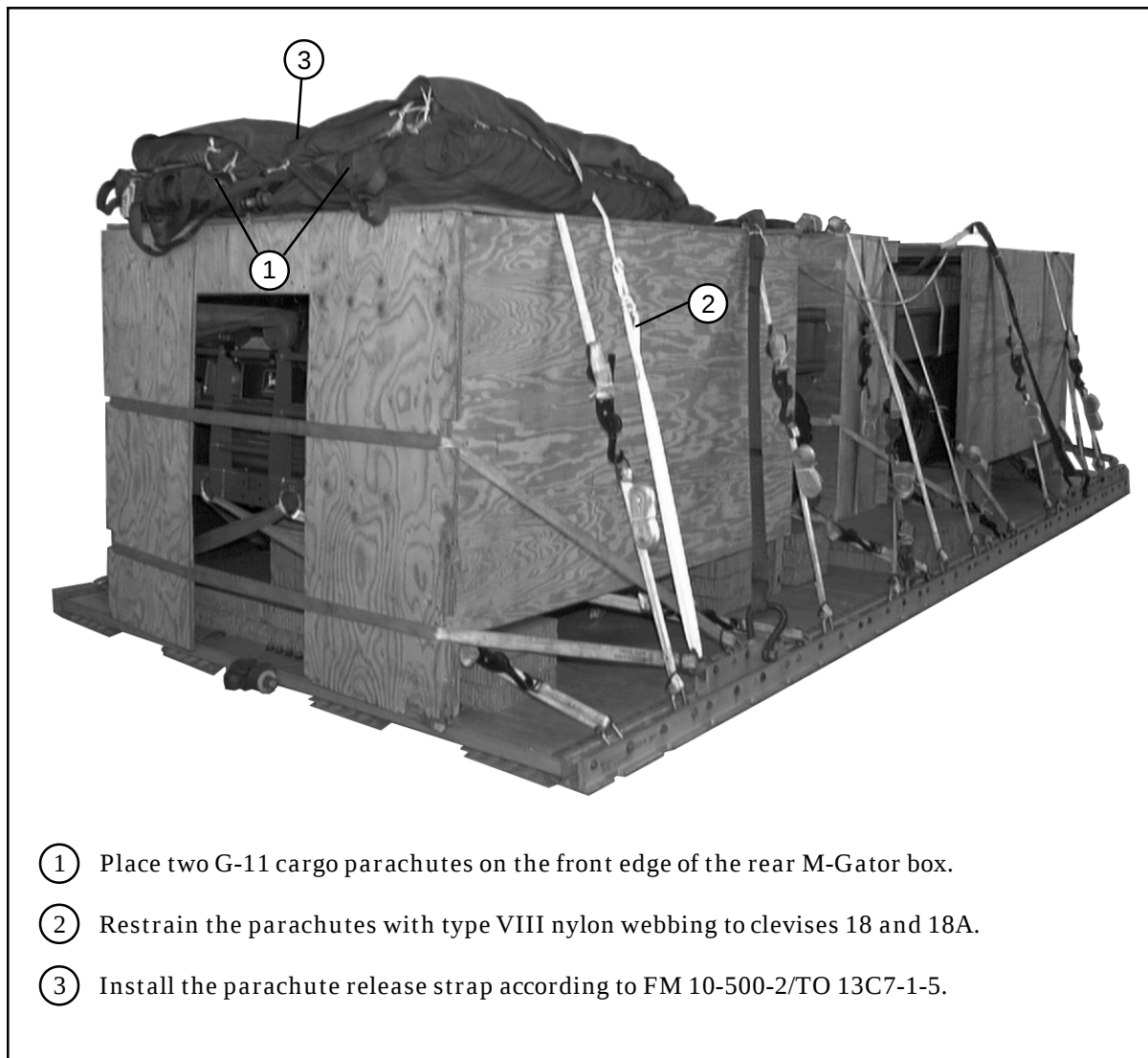


Figure 2-19. Cargo Parachutes Stowed

INSTALLING EXTRACTION SYSTEM

2-16. Install the Extraction Force Transfer Coupling (EFTC) according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 2-20.

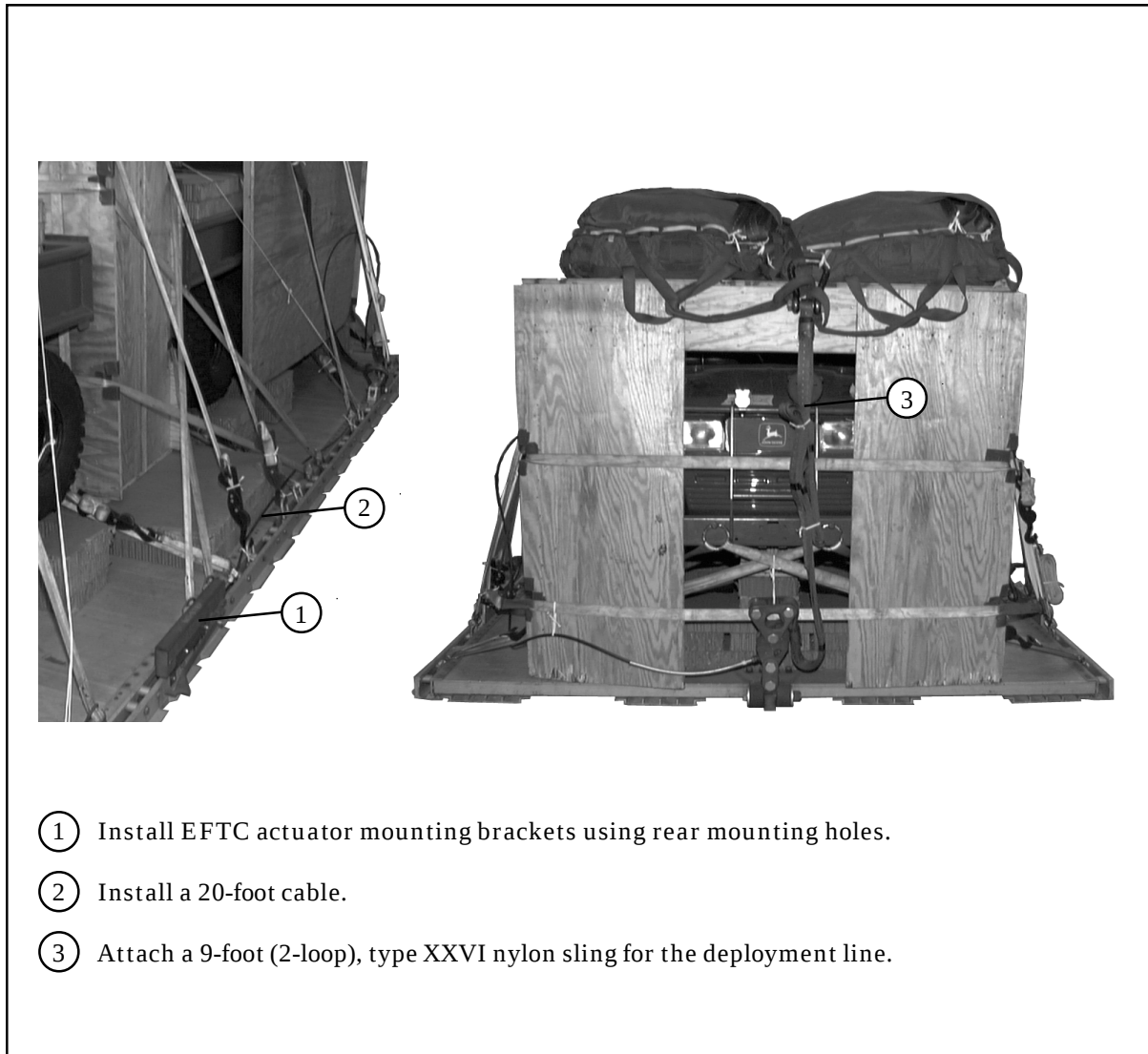


Figure 2-20. Extraction System Installed

INSTALLING PARACHUTE RELEASE

2-17. Prepare and install an M-1 cargo parachute release system according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 2-21.

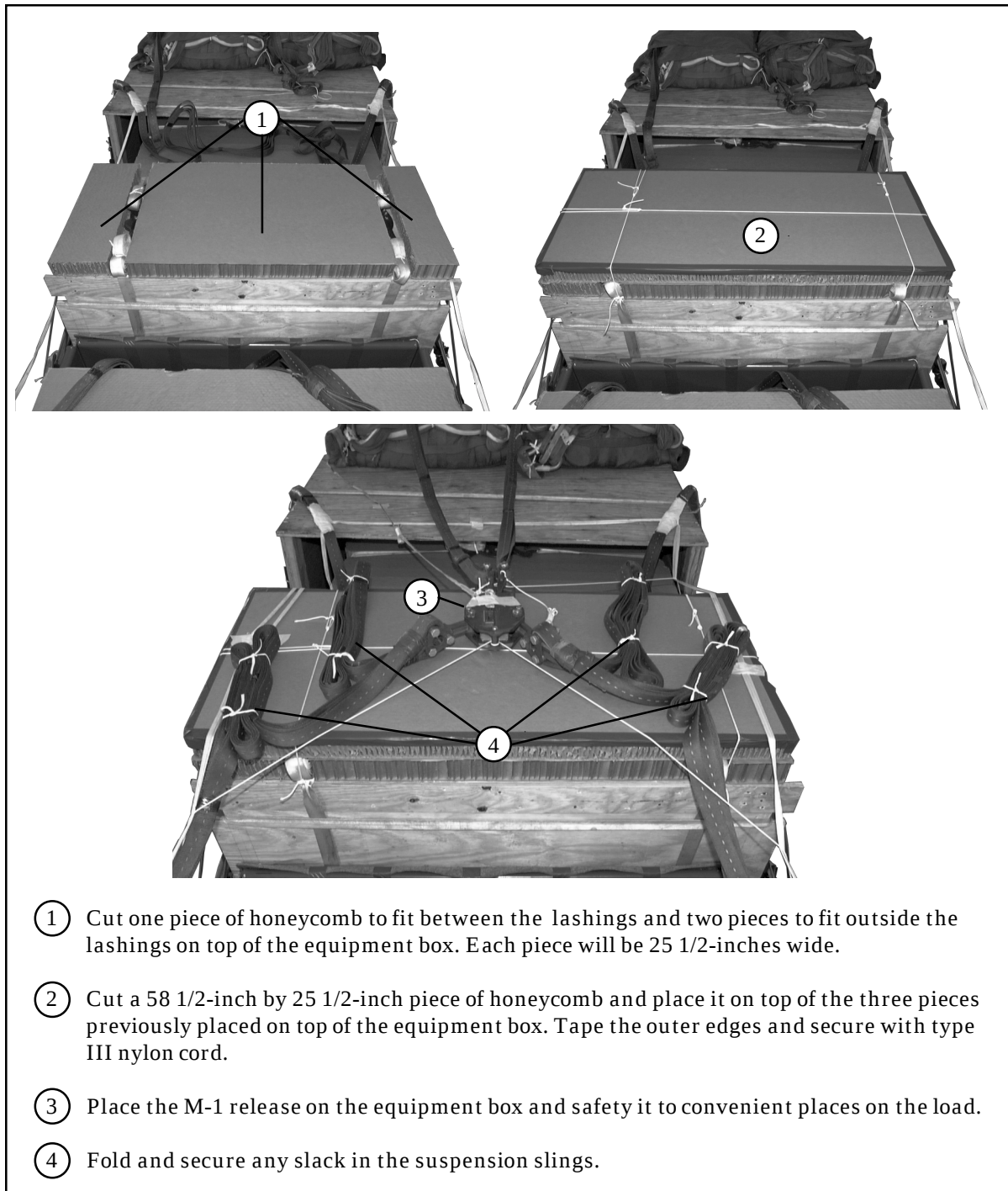


Figure 2-21. Parachute Release Installed

POSITIONING EXTRACTION PARACHUTE

2-18. Select the extraction parachute and extraction line needed using the extraction line requirements table in FM 10-500-2/TO 13C7-1-5. Place the extraction parachute and extraction line on the load for installation inside aircraft.

INSTALLING PROVISIONS FOR EMERGENCY RESTRAINTS

2-19. Select and install provisions for emergency restraints according to the emergency aft restraint requirements in FM 10-500-2/TO 13C7-1-5.

MARKING RIGGED LOAD

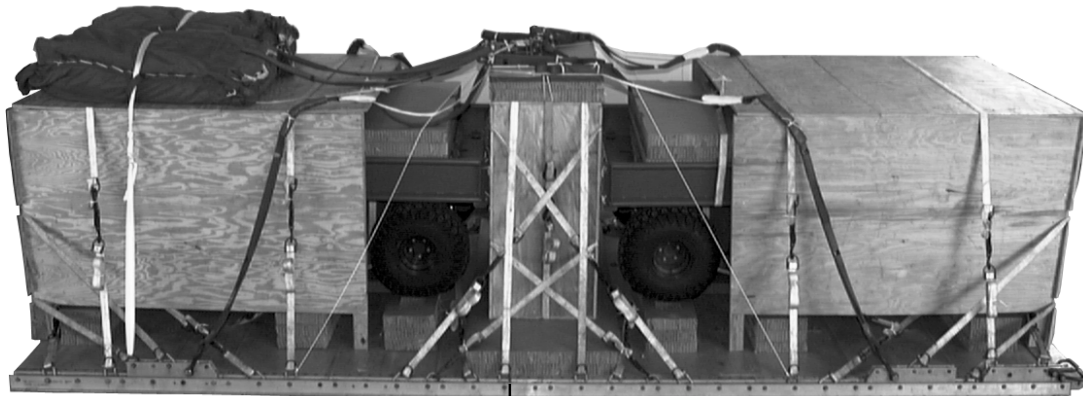
2-20. Mark the rigged load according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 2-22. Complete the Shipper's Declaration for Dangerous Goods. If the load varies from the one shown, the weight, height, CB, and must be recomputed.

EQUIPMENT REQUIRED

2-21. The equipment required to rig this load is listed in Table 2-1.

CAUTION

Make the final rigger inspection required by FM 10-500-2/TO 13C7-1-5 before load leaves rigging site.



CB

RIGGED LOAD

Weight	8,520 pounds
Height	78 inches
Width	108 inches
Overall Length	258 inches
Overhang: Front (Box).....	2 1/2 inches
Rear (EFTC).....	18 inches
Center of Balance (from front edge of platform)	124 inches

Figure 2-22. M-Gator Rigged on a 20-Foot Platform for Low-Velocity Airdrop

Table 2-1. Equipment required for rigging M-Gator on a 20-foot platform for low-velocity airdrop

National Stock Number	Item	Quantity
8040-00-273-8713	Adhesive paste, 1-gal	As required
1670-01-035-6054	Bridle, extraction line bag (C-17)	1
4030-00-090-5354	Clevis, suspension, 1-in (large)	5
4020-00-240-2146	Cord, nylon, type III, 550-lb	As required
1670-00-434-5783	Coupling, airdrop, extraction force transfer with cable, 20ft	1
1670-00-360-0328	Cover: Clevis, large	2
1670-01-183-2678	Leaf, extraction line (line bag)	2
1670-01-064-4452	Line, drogue (for C-17) 60-ft (1-loop), type XXVI	1
1670-01-062-6313	Line, extraction: For C-130: 60-ft (3-loop), type XXVI	1
1670-01-107-7651	For C-141: 140-ft (3-loop), type XXVI	1
1670-01-107-7652	For C-5: 160-ft (1-loop), type XXVI	1
1670-01-107-7651	For C-17: 140-ft (3-loop), type XXVI	1
5306-00-435-8994	Link assembly: Two-point, 3 3/4-in Bolt, 1-in diam, 4-in long	1 (2)
5310-00-232-5165	Nut, 1-in, hexagonal	(2)
1670-00-003-1954	Plate, side, 3 3/4-in	(2)
5365-00-007-3414	Spacer, large	(2)
5306-00-435-8994	Two-point, 3 3/4-in (for C-17) Bolt, 1-in diam, 4-in long	1 (2)
5310-00-232-5165	Nut, 1-in, hexagonal	(2)
1670-00-003-1954	Plate, side, 3 3/4-in	(2)
5365-00-007-3414	Spacer, large	(2)
N/A	Link, towed mechanized release (H-Block) C-17 aircraft	1
5510-00-220-6146	Lumber: 2- by 4-in	As required
5510-00-220-6148	2- by 6-in	As required
5315-00-010-4659	Nail, steel wire, common, 8d	As required
1670-00-753-3928	Pad, energy dissipating, honeycomb, 3- by 36- by 96-in	20 sheets

Table 2-1. Equipment required for rigging M-Gator on a 20-foot platform for low-velocity airdrop (continued)

National Stock Number	Item	Quantity
1670-01-016-7841	Parachute: Cargo, G-11B	2
1670-01-063-3716	Cargo, extraction, 22-ft (for C-130 and C-17)	1
1670-01-063-3715	Drogue, 15-ft (for C-17)	1
1670-01-353-8425	Platform, airdrop, type V, 20-foot: Bracket assembly, coupling	(1)
1670-01-162-2372	Clevis assembly, type V	(40)
1670-01-353-8424	Extraction bracket assembly	(1)
1670-01-162-2381	Link, tandem, suspension link assembly	(2)
1670-01-247-2389	Link, suspension	(4)
5530-00-128-4981	Plywood, 3/4- by 48- by 96-in	9 sheets
1670-01-097-8816	Release, cargo parachute, M-1	1
1670-01-063-7761	Sling, cargo airdrop For suspension: 16-ft (2-loop), type XXVI nylon webbing	4
1670-01-062-6304	For deployment: 9-ft (2-loop), type XXVI nylon webbing	1
1670-01-062-6302	For riser extension: 20-ft (2-loop), type XXVI nylon webbing	2
7510-00-266-5016	Tape, adhesive, 2-in	As required
1670-00-937-0271	Tie-down assembly, 15-ft	46
8305-00-268-2411	Webbing: Cotton, 1/4-in, type I	As required
8305-00-082-5725	Nylon, tubular, 1/2-in	As required
8305-00-261-8585	Type VIII	As required

CHAPTER 3

Rigging One Military Utility Vehicle (M-Gator) and an A-22 Cargo Bag on a 12-Foot Platform for Low-Velocity Airdrop

DESCRIPTION OF LOAD

3-1. This load consists of one John Deere Diesel, which has been named the M-Gator and one A-22 cargo bag. The minimum the A-22 cargo bag can weigh is 800 pounds and the maximum weight is 1,000 pounds. It is rigged on a 12-foot platform. The load shown has a rigged weight of 4,630 pounds. It has an overall length of 162 inches, width of 108 inches, and height of 78 inches, with a center of balance of 68 inches. The load is rigged with one G-11 cargo parachute.

PREPARING PLATFORM

3-2. Inspect, or assemble and inspect, a 12-foot platform as outlined in TM 10-1670-268-20&P/TO 13C7-52-22. Prepare a 12-foot platform using 22 tiedown clevises as shown in Figure 3-1.

BUILDING M-GATOR BOX

3-3. Build the M-Gator box as outlined in chapter 1, paragraph 1-7.

PREPARING M-GATOR

3-4. Prepare the M-Gator according to chapter 1, paragraph 1-4 and chapter 2, paragraph 2-5.

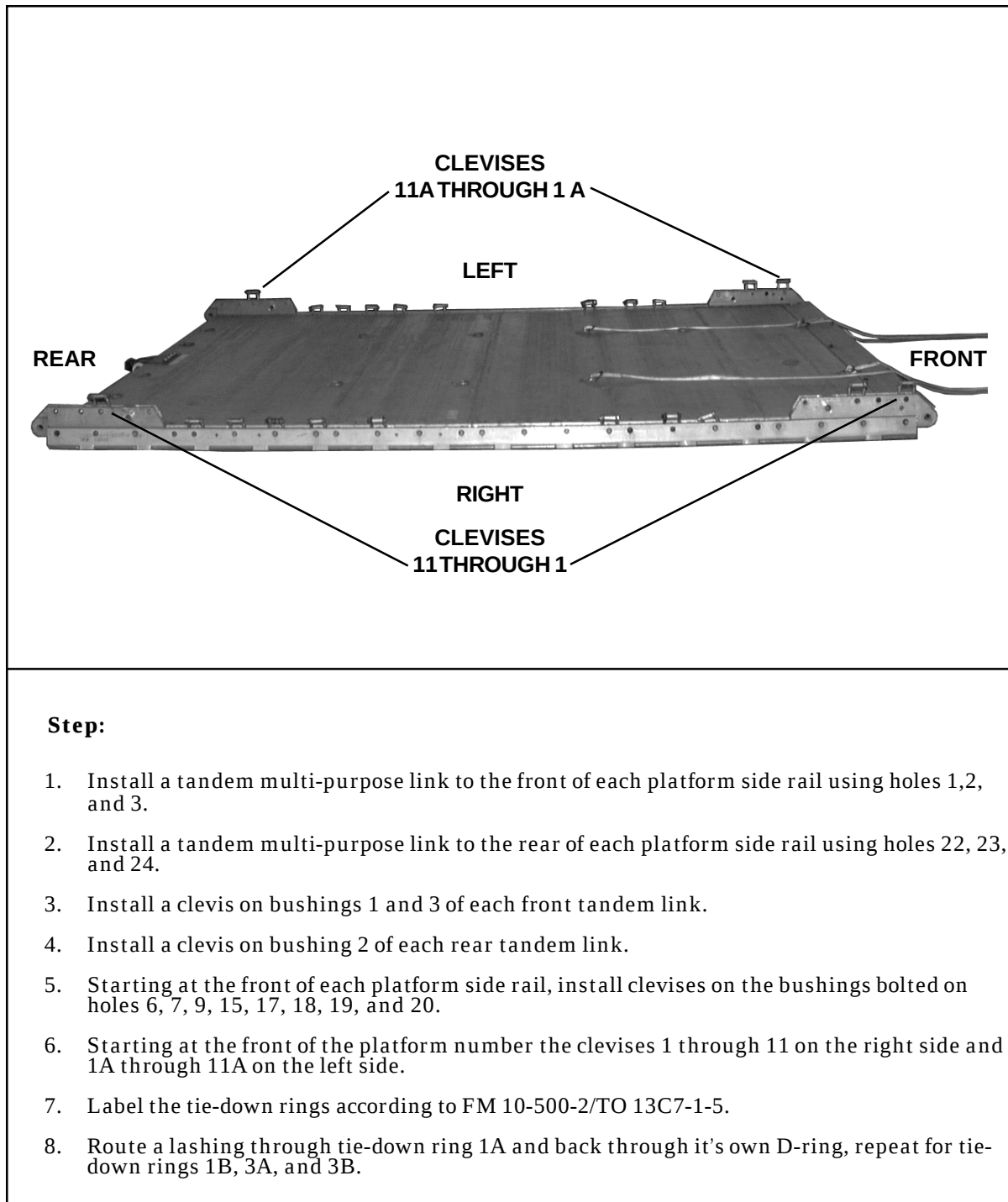


Figure 3-1. Platform Prepared

BUILDING HONEYCOMB STACKS

3-5. Refer to paragraph 1-3 for building honeycomb stack 1. Build honeycomb stack 2 as shown in Figure 3-2.

Stack Number	Pieces	Width (inches)	Length (inches)	Material	Instructions
2	2	51	36	Honeycomb	Glue and place one on top of the other.

Figure 3-2. Honeycomb Stack Prepared

POSITIONING HONEYCOMB STACK 1

3-6. Position honeycomb stack 1 centered left to right and 47 1/2 inches from the front edge of the platform and as shown in Figure 3-3.

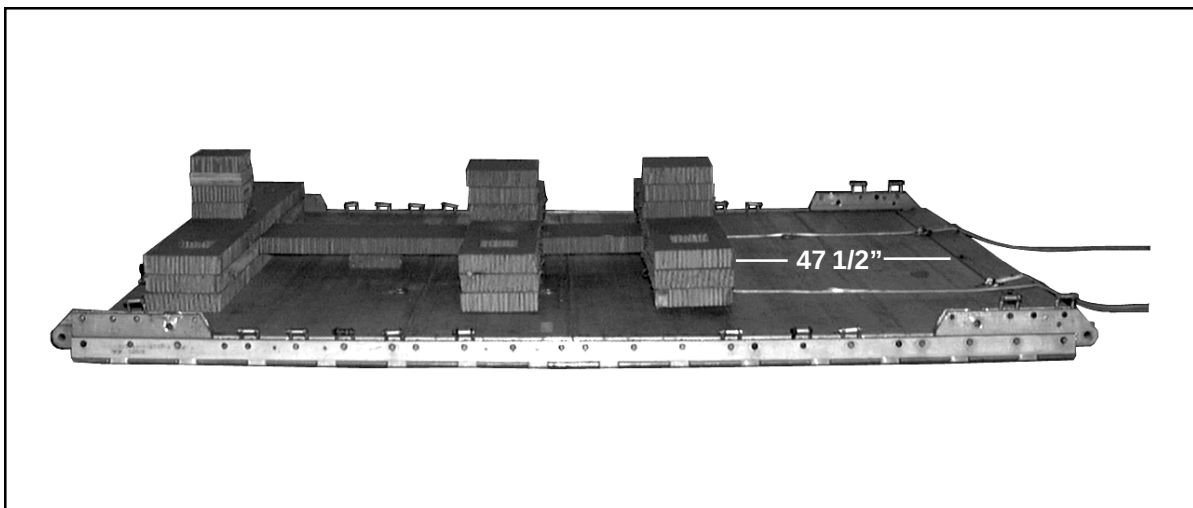


Figure 3-3. Honeycomb Stack 1 Positioned

POSITIONING LOAD

3-7. Use four 12-foot (2-loop), type XXVI, nylon suspension slings to lift and position the M-Gator. Attach large clevis assemblies to each sling. Using two front and two rear lifting points, attach one clevis to each lifting point. Position the M-Gator with the rear of the vehicle facing the front of the platform. Align the rear edge of the M-Gator frame with the front edge of the honeycomb stack and center. Each tire will be centered over a cutout in the honeycomb stack as shown in Figure 3-4.

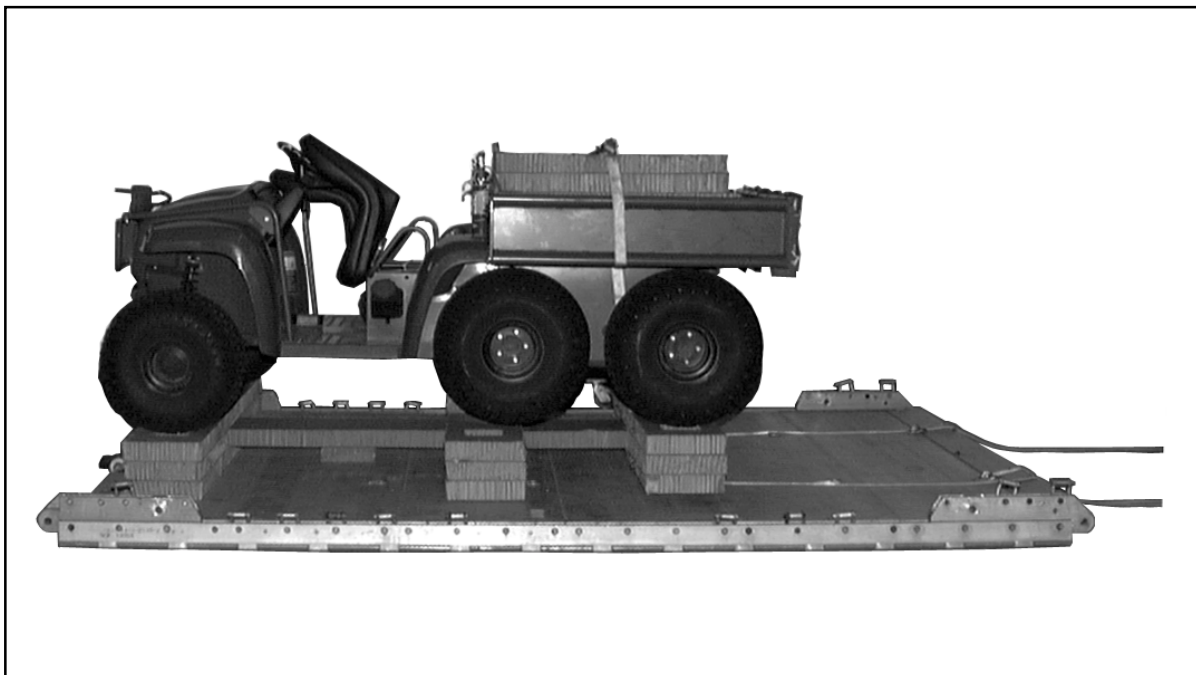


Figure 3-4. M-Gator Positioned

POSITIONING HONEYCOMB STACK 2

3-8. Temporarily place the pre-positioned lashings from deck-rings 3A and 3B over the tailgate. Position honeycomb stack 2 on the front edge of the platform, centered left to right ensure the 51 inch length is across the platform as shown in Figure 3-5.

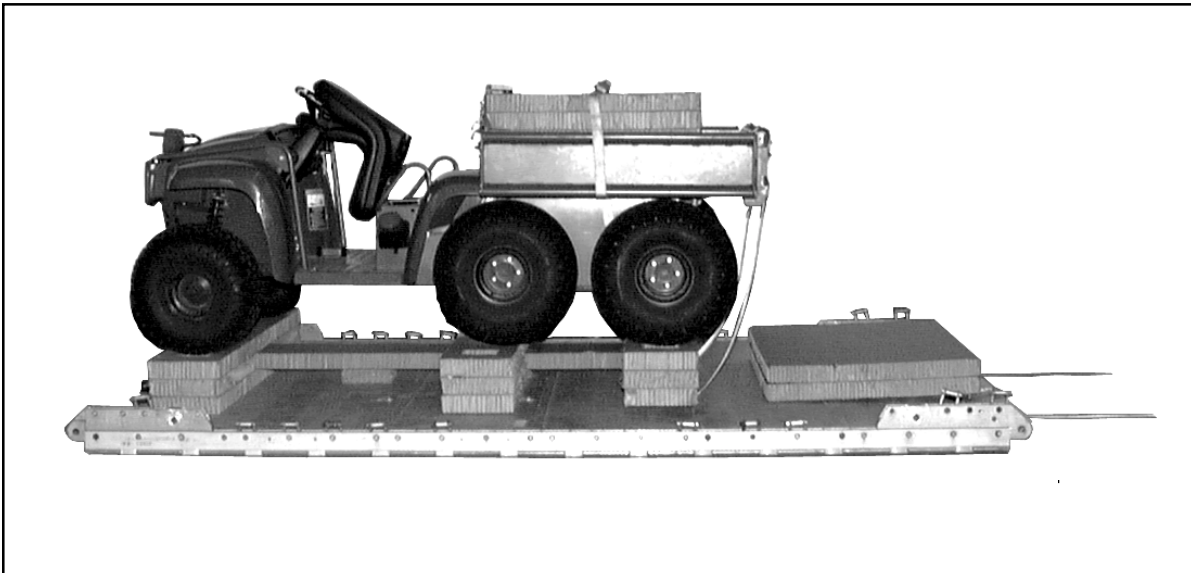


Figure 3-5. Honeycomb Stack 2 Positioned

RIGGING AND POSITIONING THE A-22 CARGO BAG

3-9. Rig the A-22 cargo bag as described in FM 10-500-3/TO13C7-1-11. The A-22 cargo bag weight limitations are 800 pounds minimum to 2,000 pounds maximum of unit specific equipment. Position the A-22 container on stack 2. Place the A-22 container against the tailgate of the M-Gator so there is no overhang as shown in Figure 3-6.

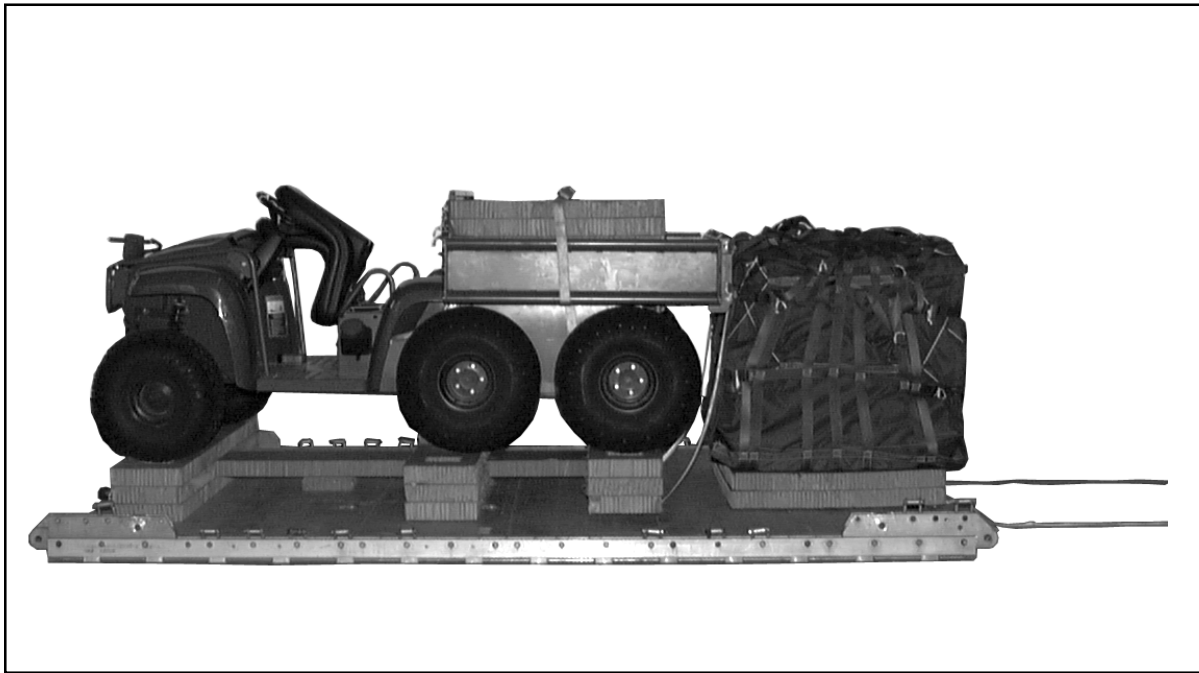


Figure 3-6. A-22 Cargo Bag Postitioned

LASHING THE A-22 CARGO BAG

3-10. Lash the A-22 cargo bag to the platform according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 3-7.

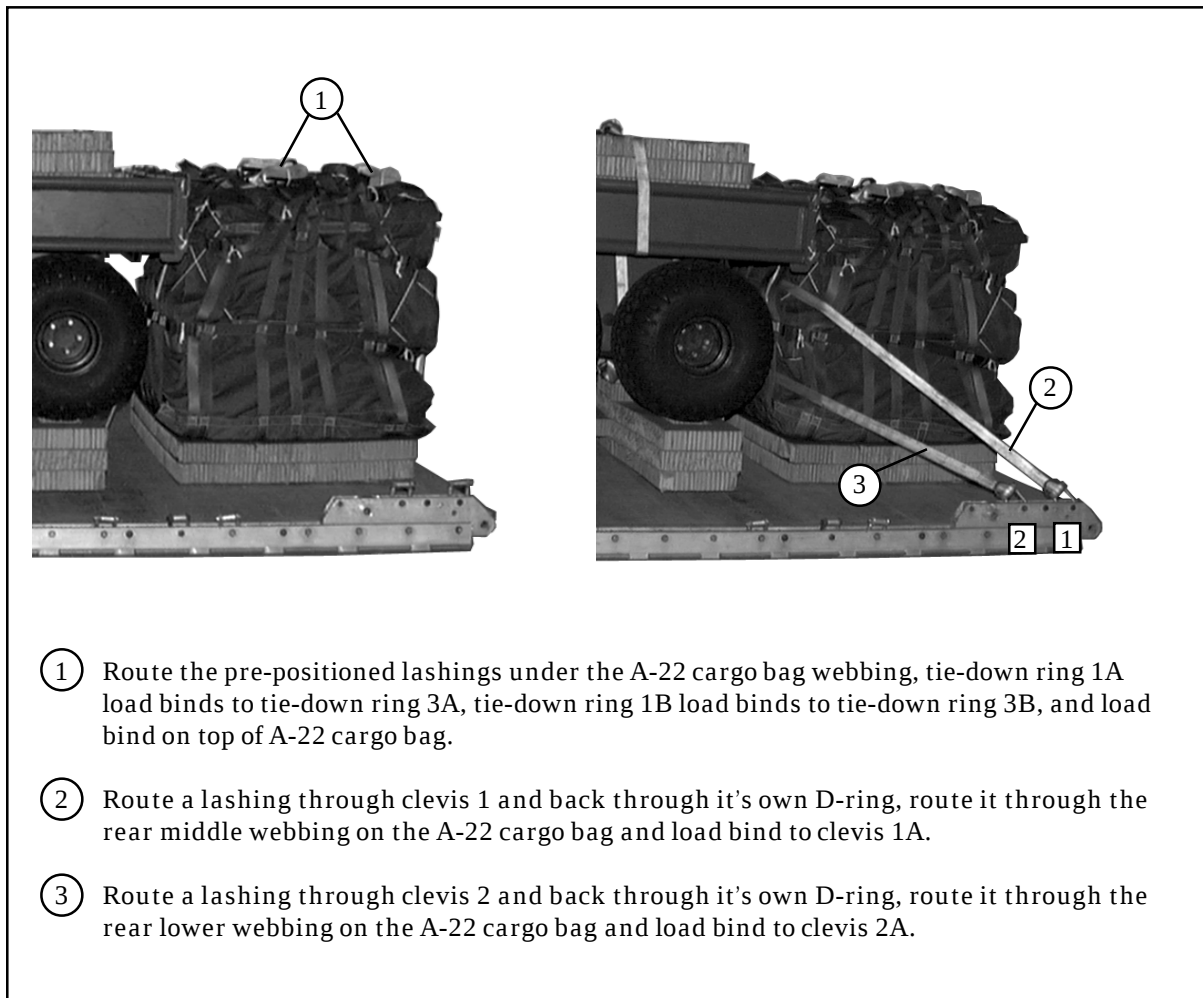
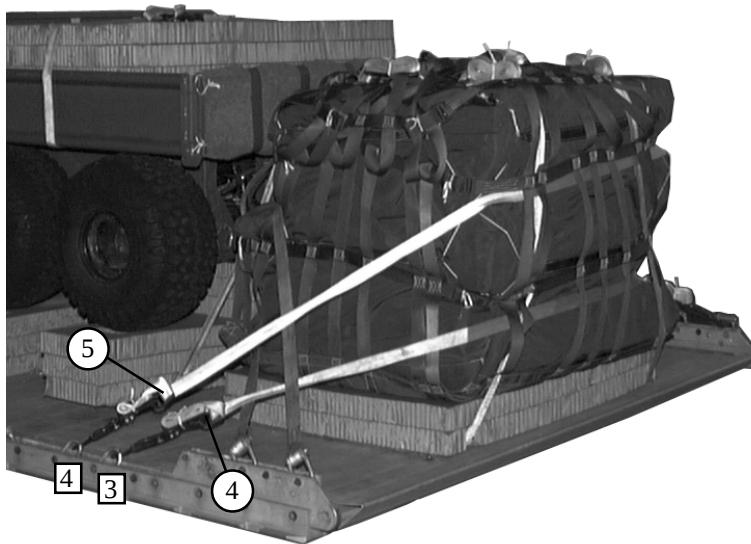


Figure 3-7. A-22 Cargo Bag Lashed



- ④ Route a lashing through clevis 3A and back through it's own D-ring. Route it through the front lower webbing on the A-22 cargo bag and load bind to clevis 3.
- ⑤ Route a lashing through clevis 4A and back through it's own D-ring. Route it through the front middle webbing on the A-22 cargo bag and load bind to clevis 4.

Figure 3-7. A-22 Cargo Bag Lashed (Continued)

LASHING M-GATOR

3-11. Lash the M-Gator to the platform according to FM 10-500-2/TO 13C7-1-5 and as shown in Figures 3-8 through 3-10.

NOTE: Place all load binders near the platform in case adjustments to the lashings are needed.

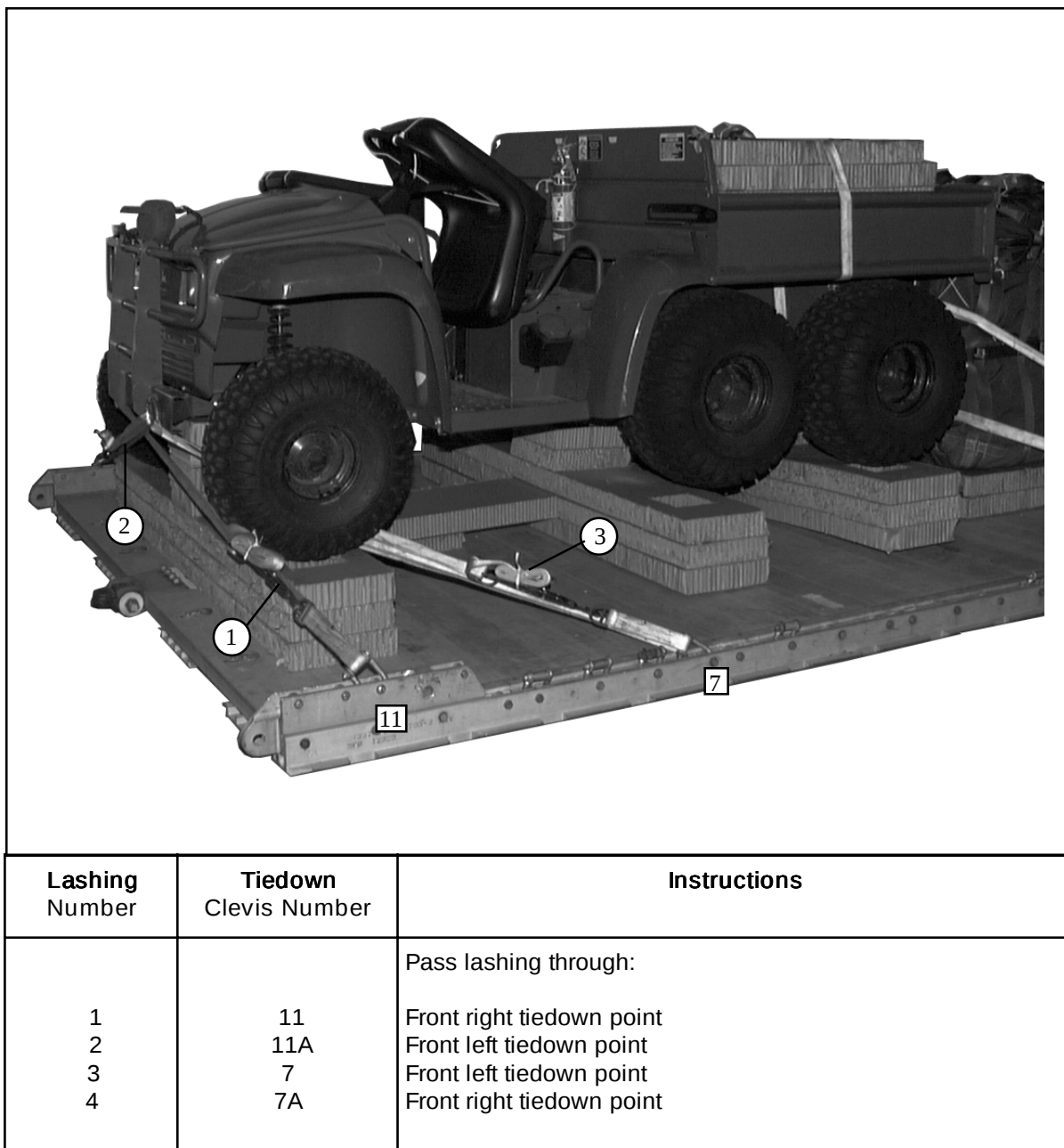


Figure 3-8. Lashings 1,2,3, and 4 Installed

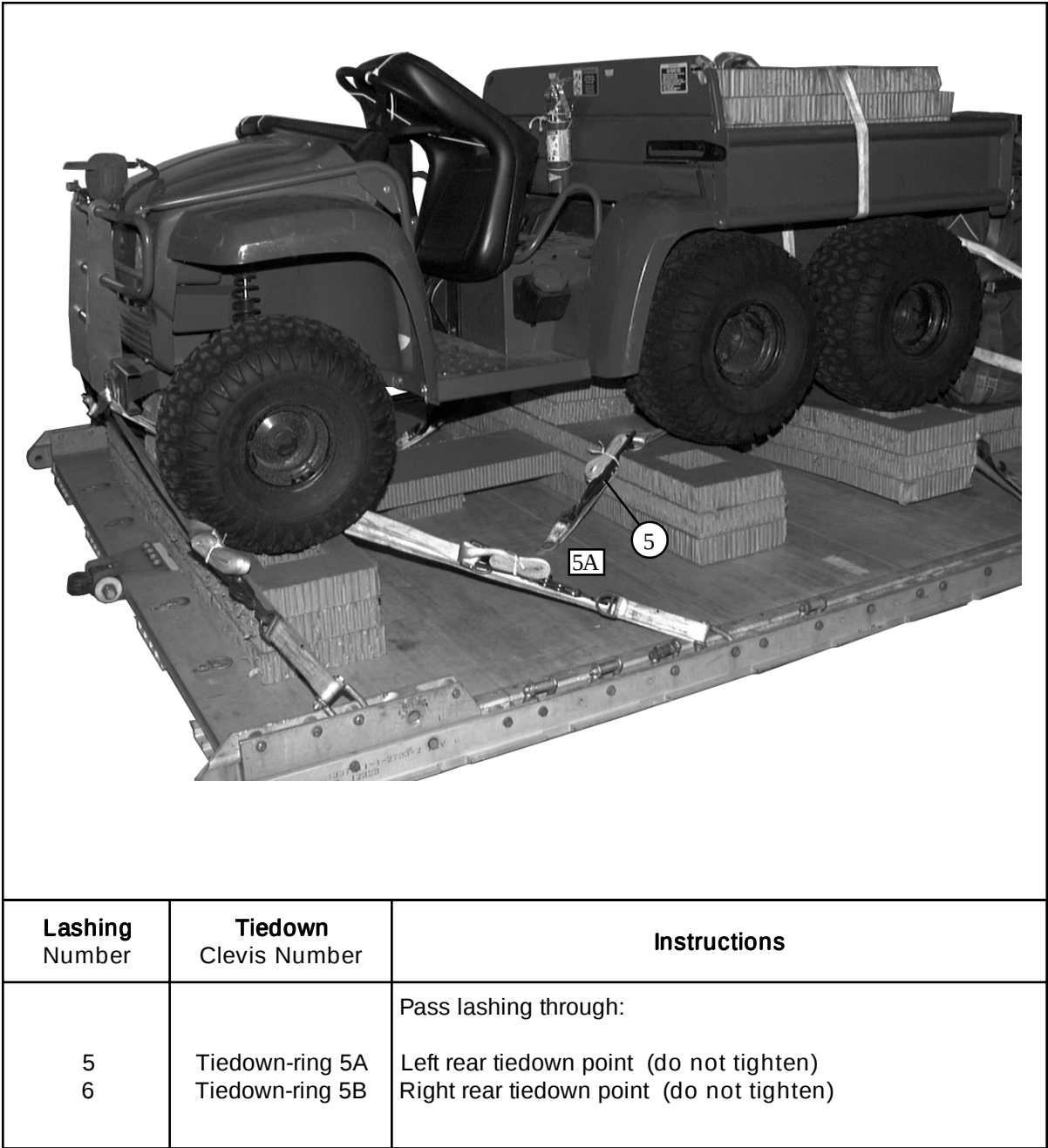
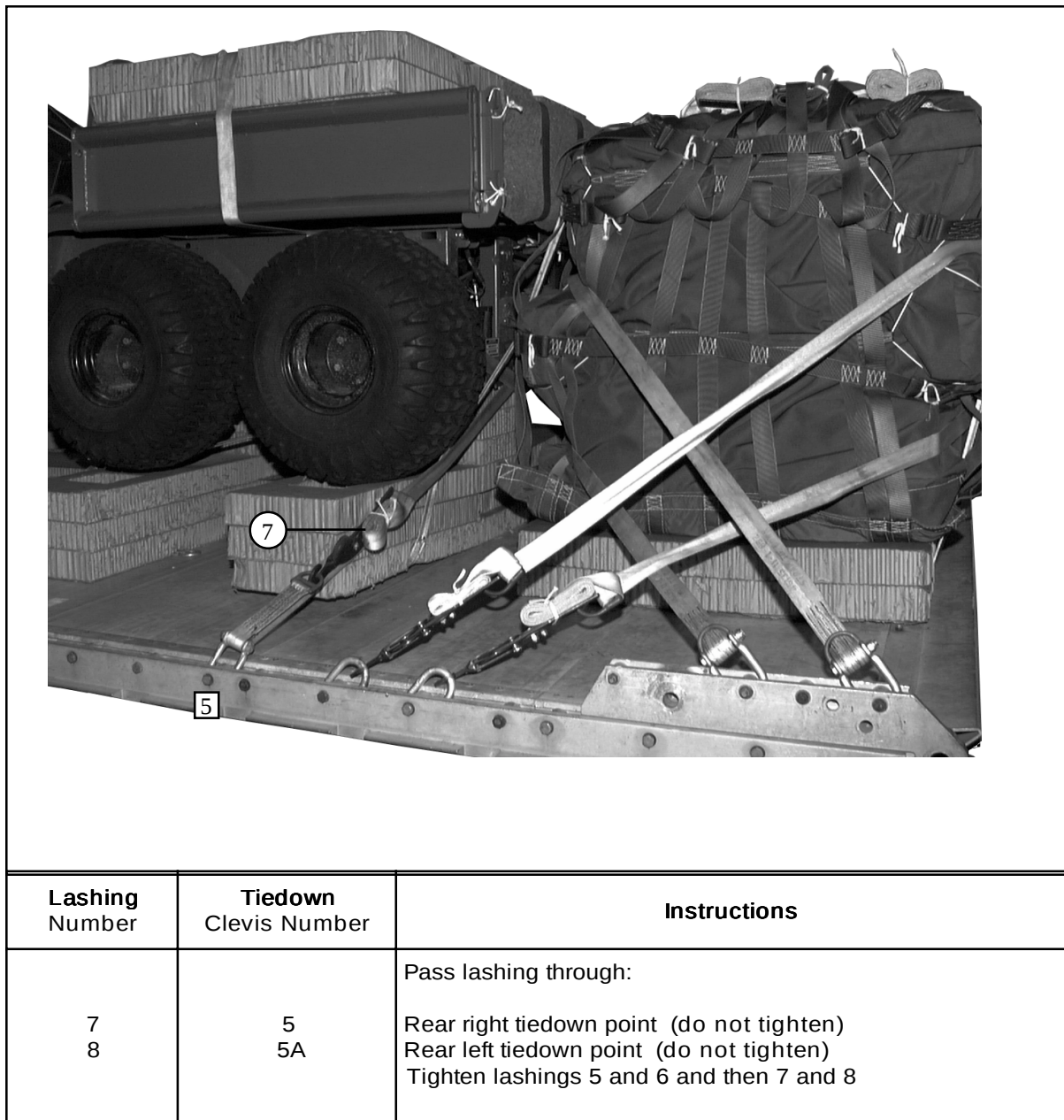


Figure 3-9. Lashings 5 and 6 Installed

**Figure 3-10. Lashings 7 and 8 Installed**

POSITIONING M-GATOR BOX

3-12. Position M-Gator box as shown in Figure 3-11.

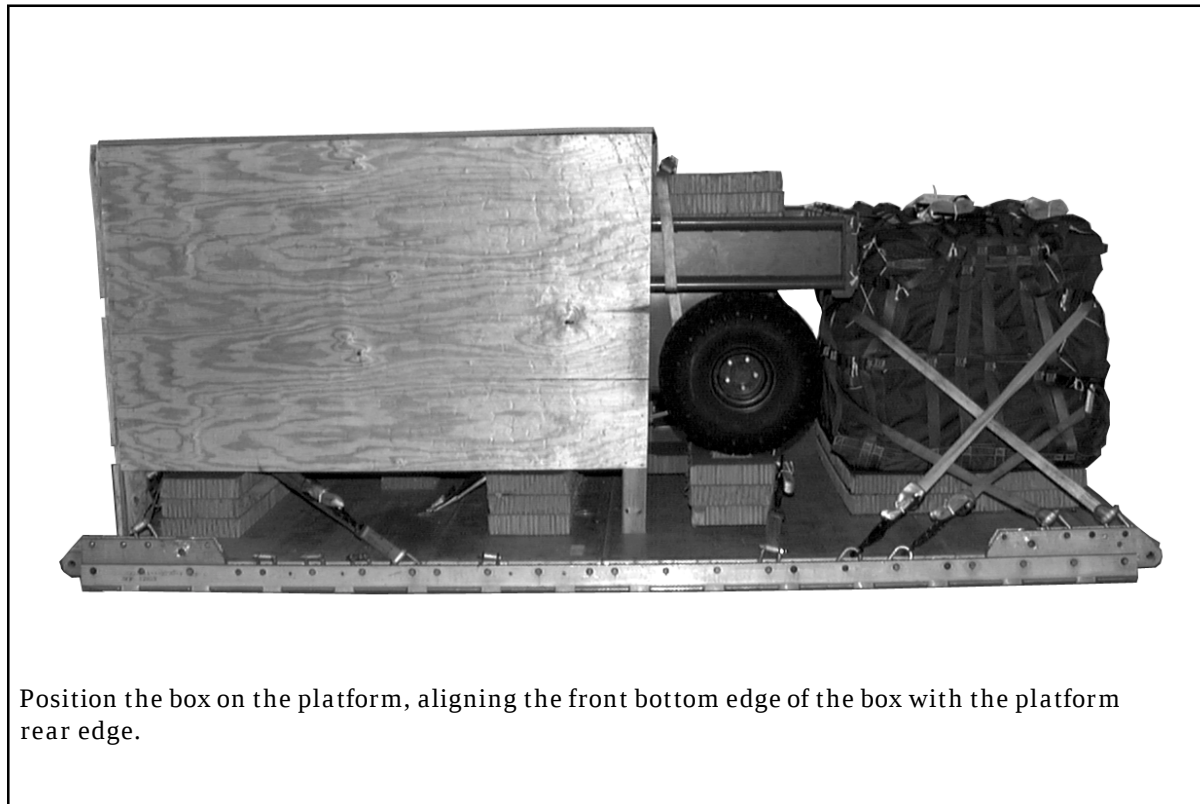


Figure 3-11. M-Gator Box Positioned

LASHING M-GATOR BOX

3-13. Lash the M-Gator box to the platform according to FM 10 500-2/TO 13C7-1-5 and as shown in Figure 3-12.

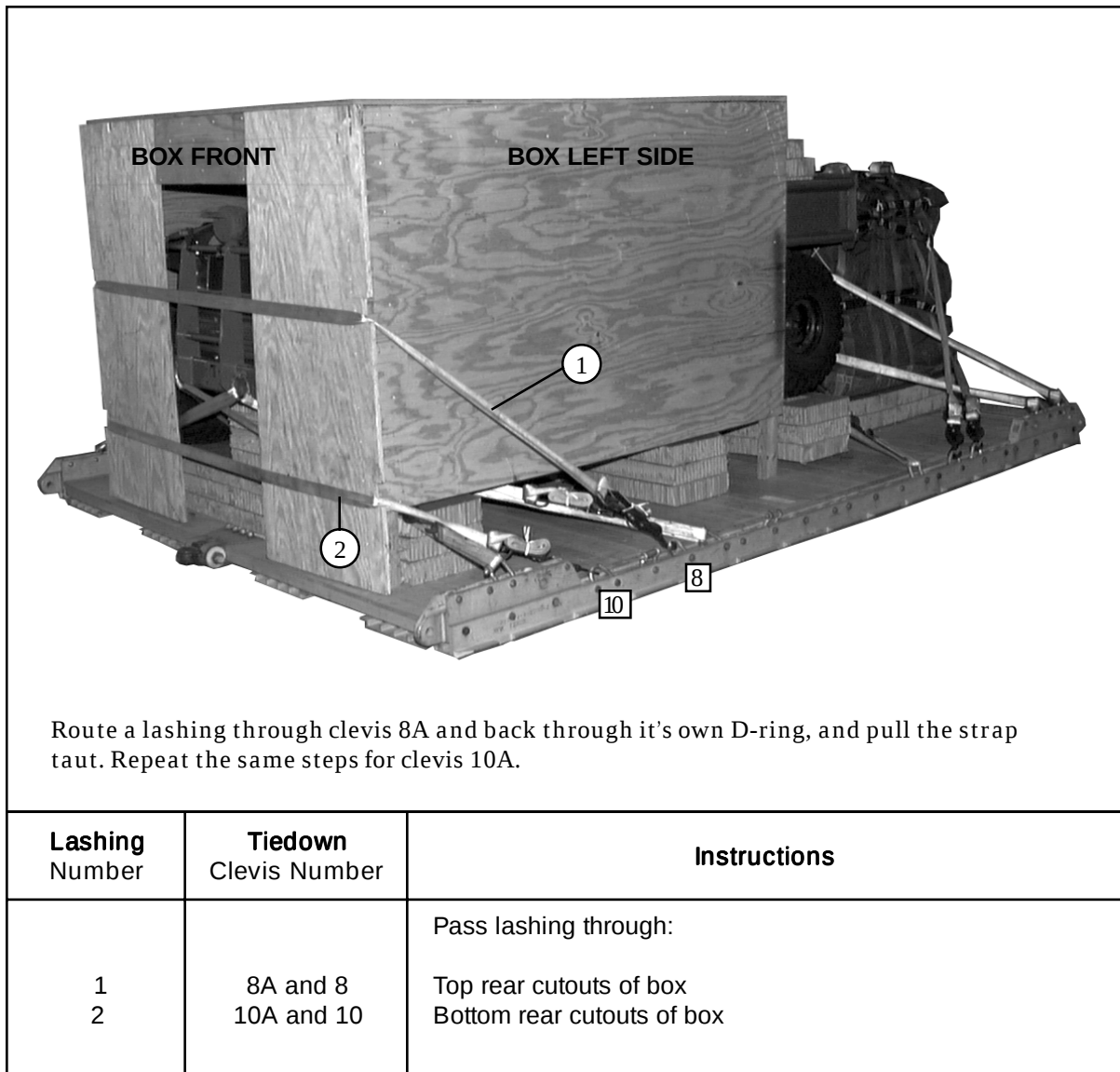
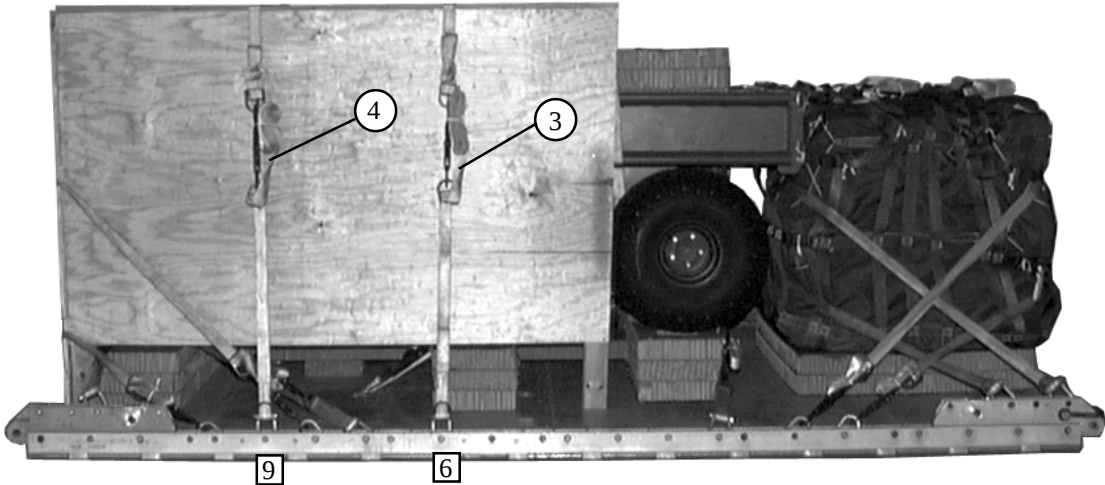


Figure 3-12. M-Gator Box Lashed



The diagram shows a large wooden box on a metal trailer. Two vertical lashing straps are labeled with circled numbers 4 and 3. Two horizontal lashing straps are labeled with boxed numbers 9 and 6. The box is secured to the trailer with these straps. To the right of the box is a vehicle with a spare tire mounted on its side.

Route a lashing through clevis 6 and back through it's own D-rig, and pull strap taut. Repeat the same steps for clevises 6A, 9, and 9A.

Lashing Number	Tiedown Clevis Number	Instructions
3 4	6 and 6A 9 and 9A	Pass lashing: Over top of box and bind on left side of box. Over top of box and bind on left side of box.

Figure 3-12. M-Gator Box Lashed (Continued)

INSTALLING SUSPENSION SLINGS

3-14. Install four 16-foot (2 loop), type XXVI nylon slings as suspension slings according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 3-13.

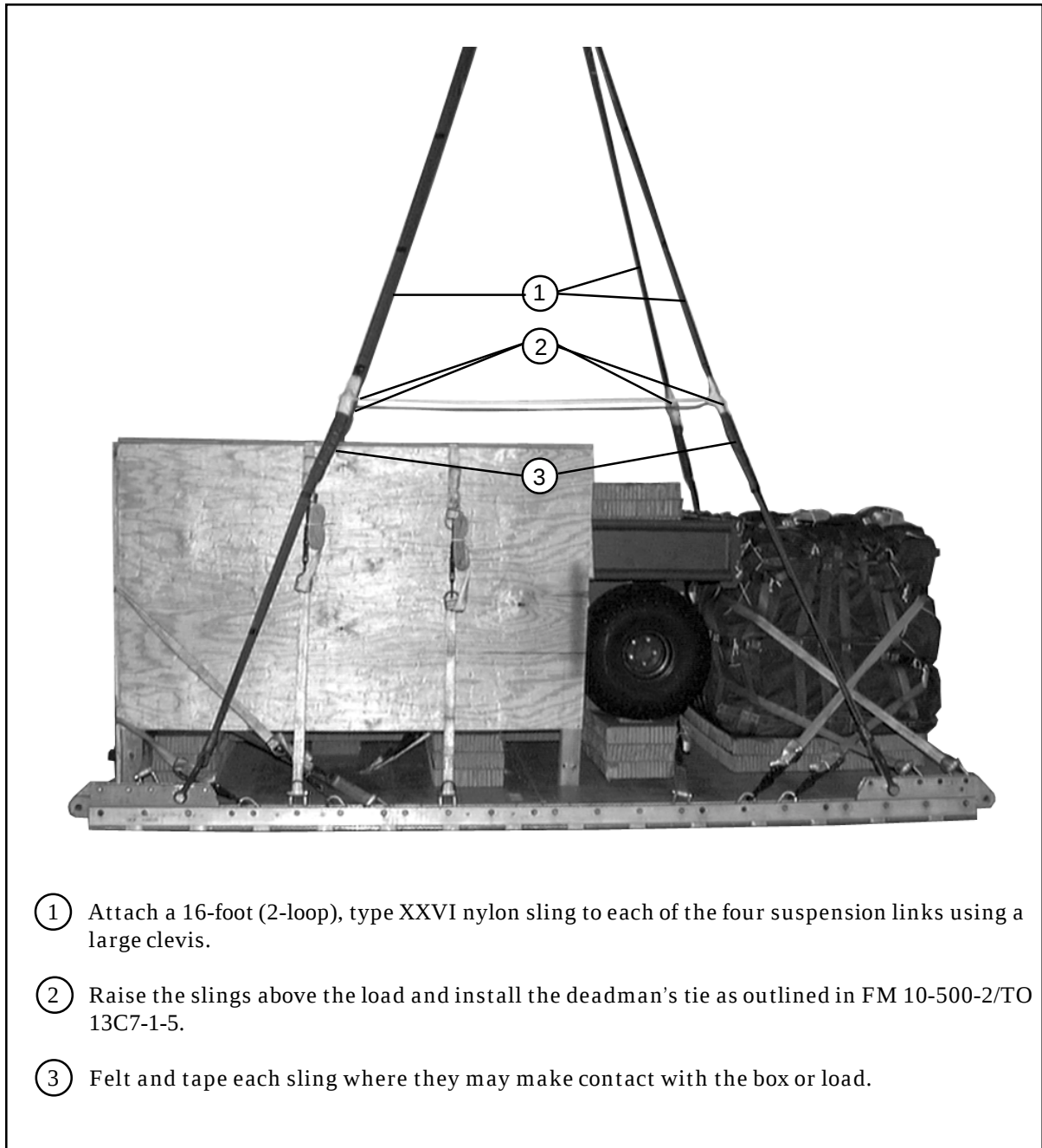


Figure 3-13. Suspension Slings Installed

STOWING CARGO PARACHUTE

3-15. Prepare, stow, and restrain one G-11 cargo parachute on the front edge of the M-Gator box according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 3-14.



Figure 3-14. Cargo Parachute Stowed

INSTALLING EXTRACTION SYSTEM

3-16. Install the Extraction Force Transfer Coupling (EFTC) according to FM 10-500-2/TO13C7-1-5 and as shown in Figure 3-15.

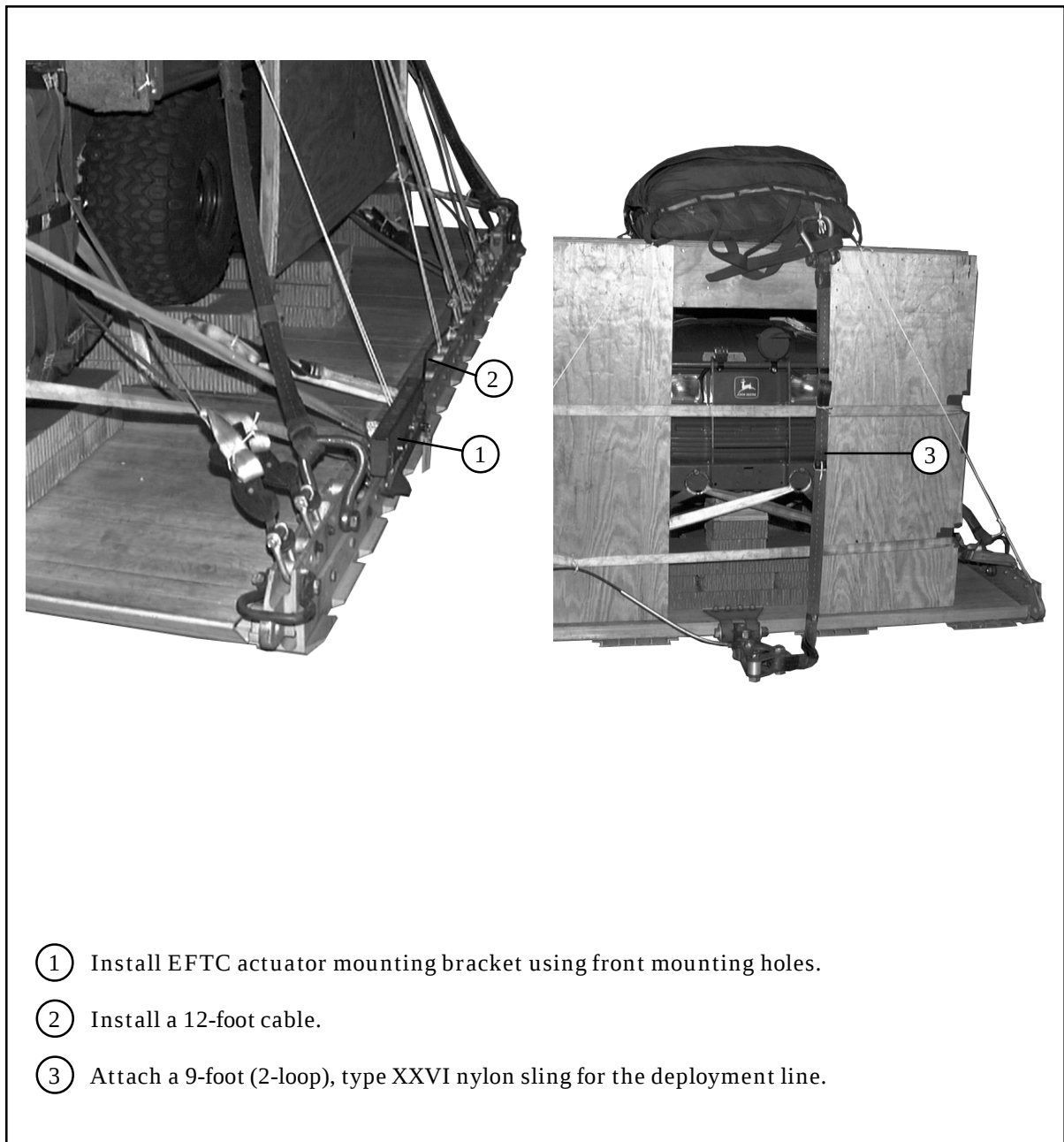


Figure 3-15. Extraction System Installed

INSTALLING PARACHUTE RELEASE

3-17. Prepare and install an M-1 cargo parachute release system according to FM 10-500-2/TO 13C7-1-5, and as shown in Figure 3-16.

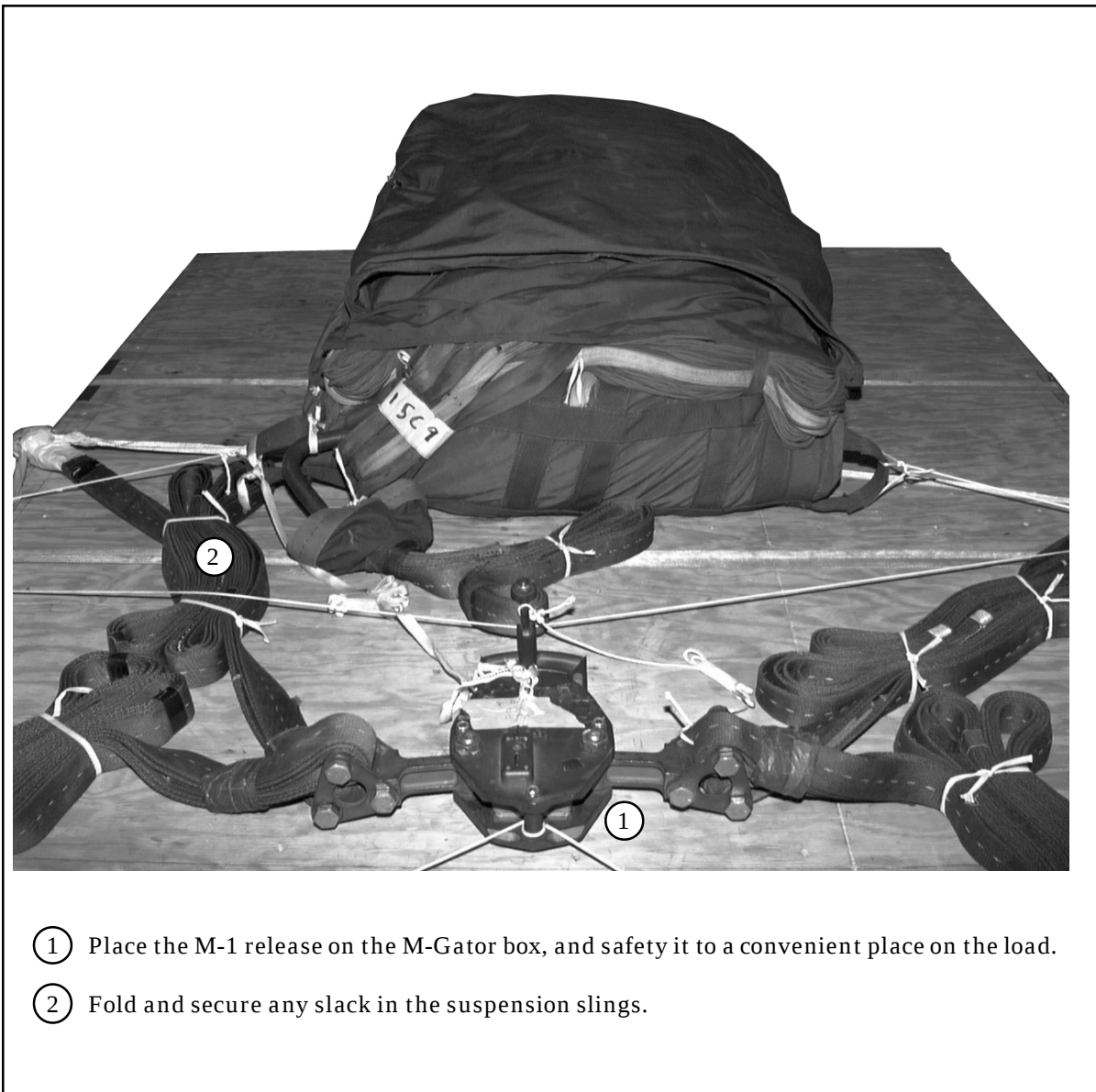


Figure 3-16. Parachute Release System Installed

POSITIONING EXTRACTION PARACHUTE

3-18. Select the extraction parachute and extraction line needed using the extraction line requirements table in FM 10-500-2/TO 13C7-1-5. Place the extraction parachute and extraction line on the load for installation inside aircraft.

INSTALLING PROVISIONS FOR EMERGENCY RESTRAINTS

3-19. Select and install provisions for emergency restraints according to the emergency aft restraints requirements in FM 10-500-2/TO 13C7-1-5.

MARKING RIGGED LOAD

3-20. Mark the rigged load according to FM 10-500-2/TO 13C7-1-5 and as shown in Figure 3-17. Complete the Shipper's Declaration for Dangerous Goods. If the load varies from the one shown, the weight, height, tip-off curve, CB, and parachute requirements must be recomputed.

EQUIPMENT REQUIRED

3-21. The equipment required to rig this load is listed in Table 3-1.

CAUTION

Make the final rigger inspection required by FM 10-500-2/TO 13C7-1-5 before load leaves rigging site.



CB

RIGGED LOAD

Weight	4,630 pounds
Height	78 inches
Width	108 inches
Overall Length	162 inches
Overhang: Front	0 inches
Rear (EFTC).....	18 inches
Center of Balance (from front edge of platform)	68 inches

Figure 3-17. M-Gator and CDS Rigged on a 12-Foot Platform For Low-Velocity Airdrop

Table 3-1. Equipment required for rigging M-Gator and CDS on a 12-foot platform for low-velocity airdrop

National Stock Number	Item	Quantity
8040-00-273-8713	Adhesive paste, 1-gal	As required
1670-01-035-6054	Bridle, extraction line bag	1
1670-00-587-3421	Bag, cargo, aerial delivery, A-22	1
4030-00-090-5354	Clevis, suspension, 1-in (large)	5
4020-00-240-2146	Cord, nylon, type III, 550-lb	As required
1670-00-434-5783	Coupling, airdrop, extraction force transfer with cable, 12-ft	1
1670-00-360-0328	Cover: Clevis, large	1
1670-01-183-2678	Leaf, extraction line (line bag)	2
1670-01-064-4452	Line, drogue (for C-17) 60-ft (1-loop), type XXVI	1
1670-01-064-4452	Line, extraction: For C-130: 60-ft (1-loop), type XXVI	1
1670-01-107-7652	For C-141: 160-ft (1-loop), type XXVI	1
1670-01-107-7652	For C-5: 160-ft (1-loop), type XXVI	1
1670-01-107-7652	For C-17: 160-ft (1-loop), type XXVI	1
5306-00-435-8994	Link assembly: Two-point, 3 3/4-in Bolt, 1-in diam, 4-in long	1 (2)
5310-00-232-5165	Nut, 1-in, hexagonal	(2)
1670-00-003-1954	Plate, side, 3 3/4-in	(2)
5365-00-007-3414	Spacer, large	(2)
5306-00-435-8994	Two-point, 3 3/4-in (for C-17) Bolt, 1-in diam, 4-in long	1 (2)
5310-00-232-5165	Nut, 1-in, hexagonal	(2)
1670-00-003-1954	Plate, side, 3 3/4-in	(2)
5365-00-007-3414	Spacer, large	(2)
N/A	Link, towed mechanized release (H-Block) C-17 aircraft	1
5510-00-220-6146	Lumber: 2- by 4-in	As required
5510-00-220-6148	2- by 6-in	As required
5315-00-010-4659	Nail, steel wire, common, 8d	As required
1670-00-753-3928	Pad, energy dissipating, honeycomb, 3- by 36- by 96-in	9 sheets

Table 3-1. Equipment required for rigging M-Gator and CDS on a 12-foot platform for low-velocity airdrop (continued)

National Stock Number	Item	Quantity
1670-01-016-7841	Parachute: Cargo, G-11B	1
1670-01-063-3715	Cargo, extraction, 15ft	1
1670-01-063-3715	Drogue, 15ft (for C-17)	1
1670-01-353-8425	Platform, airdrop, type V, 12-foot: Bracket assembly, coupling	(1)
1670-01-162-2372	Clevis assembly, type V	(22)
1670-01-353-8424	Extraction bracket assembly	(1)
1670-01-162-2381	Link, tandem, suspension link assembly	(4)
5530-00-128-4981	Plywood, 3/4- by 48- by 96-in	6 sheets
1670-01-097-8816	Release, cargo parachute, M-1	1
1670-01-063-7761	Sling, cargo airdrop For suspension: 16-ft (2-loop), type XXVI nylon webbing	4
1670-01-062-6304	For deployment: 9-ft (2-loop), type XXVI nylon webbing	1
1670-01-062-6301	For riser extension: 3-ft (2-loop), type XXVI nylon webbing	1
7510-00-266-5016	Tape, adhesive, 2-in	As required
1670-00-937-0271	Tie-down assembly, 15-ft	24
8305-00-268-2411	Webbing: Cotton, 1/4-in, type I	As required
8305-00-082-5725	Nylon, tubular, 1/2-in	As required
8305-00-261-8585	Type VIII	As required

Glossary

AFB	Air Force Base
AFTO	Air Force Technical Order
AFSOC	Air Force Special Operations Command
ALC	Airlift Logistics Center
AMC	Air Mobility Command
CB	center of balance
CDS	container delivery system
d	penny
DC	District of Columbia
diam	diameter
EFTC	extraction force transfer coupling
FM	field manual
ft	foot/feet
gal	gallon
HQ	headquarters
in	inch
lb	pound
M-Gator	military utility vehicle
No	number
TRADOC	US Army Training and Doctrine Command
USA	United States of America
TM	technical manual
TO	technical order

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AFTO Form 22	Technical Order Publication Improvement Report
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FM 4-20.108 (FM 10-508)
TO 13C7-2-491
29 JUNE 2001

By Order of the Secretary of the Army and the Air Force:

Official:

Handwritten signature of Joel B. Hudson in black ink.

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